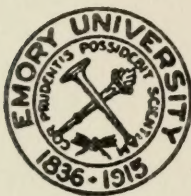


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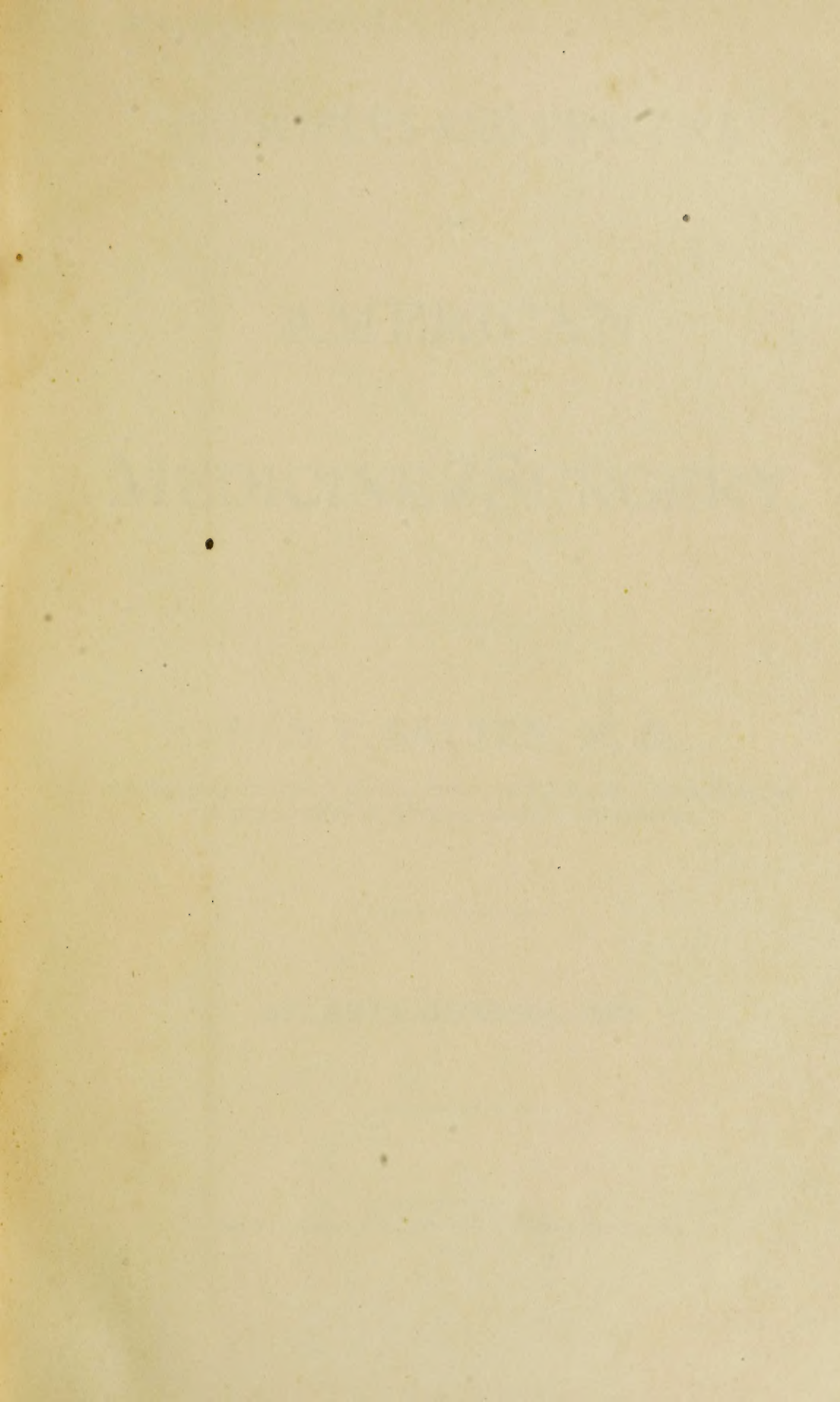


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PRINCIPLES AND PRACTICE
OF
AMERICAN
MEDICINE *&* SURGERY,

By S. F. SALTER, M. D.,

PROFESSOR OF PRINCIPLES AND PRACTICE OF MEDICINE AND CLINICAL MEDICINE
IN THE COLLEGE OF AMERICAN MEDICINE AND SURGERY.

ATLANTA, GEORGIA, 1883.

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PREFACE.

In the absence of any standard text-book on practice, suited to the student and practitioner of American medicine, I have undertaken the preparation of this volume. Originality in the descriptive text is not claimed. I have had access to the works of the leading authors, both home and foreign, and have made such extracts as have suited my requirement in making up the definition pathology and general description of diseases. In treatment I claim originality, having given that which years of practical experience have proved worthy of confidence.

The work is not perfect, but will be of incalculable advantage to the student of medicine, especially of the American System ; and to practitioners of every school it will commend itself as a work of ready reference.

S. F. SALTER, M. D.

Atlanta, Georgia, April, 1883.

PRINCIPLES AND PRACTICE OF AMERICAN MEDICINE & SURGERY

PRINCIPLES OF MEDICINE.

Matter, in all its diversity of character, quality, form and combination, may be classed in two great divisions, namely: *Organic*, and *Inorganic Matter*.

Organic Matter includes the two vast kingdoms of nature, the animal and vegetable kingdoms.

Inorganic Matter includes all bodies not possessed of *life*, and which are not endowed with the *capacity* for life.

Without organization there cannot be life; and again, organized bodies, though possessed of a capacity for life, require the impression of "stimulants to call it into activity."

"Life is the consequence of the operation of stimuli, or excitants, on organized matter."

"Life is the organism in motion."

"A proper organization, and suitable temperature, produce life and motion. Caloric, or heat, is the cause of life and motion."

"Caloric, whatever be its nature, is the first and most important of all stimulants; and if it ceases to animate the economy, others lose their influence over it."

There is, in an egg, a point of organized matter—a germ endowed with a capacity for life. Place the egg in a temperature of 98 degrees of heat, and vital movements will commence in the elements comprising the germ. Under the stimulating power of heat, the germ is nourished, organs developed, and a perfect animal formed. If the egg becomes chilled, vital movement ceases, disorganization and decomposition ensue.

In the early period of human animal life, heat is derived from the mother; and after birth, heat is generated within the body. The generation of heat within the body is as necessary to vital action in man, as external heat is necessary to sustain vitality in the chick, before it bursts from the shell.

It is by the animating power of heat that the system becomes susceptible to the impression of other life-supporting agents, as air, light, electricity, galvanism, food, drinks, and medicine.

Animals that remain torpid and insensible during winter are re-awakened into life and activity on the return of warm weather. Upon the same principle the vapor bath proves a powerful auxiliary remedy in the cure of dis-

ease, by imparting caloric and electricity to the blood; and in many instances of slight ailments, is sufficient of itself to restore to the system the power necessary to establish health.

"If the system be deprived of caloric for a certain length of time, all the preservative, recuperative and sanative phenomena cease. It is the same also as respects oxygen."

Caloric (heat) brings into play the nerve power, (assumed to be an electro-galvanic influence) which, operating through the medium of the nervous apparatus, carries on and governs all the vital functions—respiration, circulation, digestion, nutrition, assimilation, etc.; selects and expels effete or worn out matter by the pores of the skin, the kidneys, and other depuratory organs; carries on all the various secretions; endows the organs with sensation; and enables the organization to resist the influence of causes that tend to its destruction.

If the premises advanced in the above paragraphs be true, they prove (theoretically) the correctness of the American practice, founded by Dr. S. Thomson, which has for its object to promote and sustain the function of calorification, or as Dr. Thomson terms it, "the power of inward heat" as a means of aiding the vital functions, under the control of the nervous influence, to overcome disease and re-establish health.

It is through the agency of vital energy inseparably connected with the functions of calorification, that the causes of disease are resisted, and health restored when the system is invaded with disease. This is universally true under all circumstances, in relation to general disease.

"While the assimilation of food, in vegetables, and the whole process of their formation, are dependent on certain external influences which produce motion, the development of the animal organism is, to a certain extent, independent of these external influences, just because the animal body can produce within itself that source of motion which is indispensable to the vital powers. The mutual action between the elements of the food and the oxygen conveyed by the circulation of the blood to every part of the body, is *the source of animal heat*."—

A good digestion and a proper supply of food and air, are requisite, not only to supply the wastes of the system, but also to produce the amount of heat and nervous energy necessary to maintain healthy action in the system. "The stomach is the fire-place of the system, and food the fuel that furnishes the heat, upon which life and motion depend." It naturally follows that a wholesome, nutritious diet is essential to the health.

"The law of organic life is fixed; it cannot be changed; but the forces that bring this law into activity, heat, electricity and magnetism, are never fixed, but are constantly subject to disturbances from perturbing influences."

The laws of life always operate in the fullest degree of perfection, under the attending circumstances.

To operate in their greatest degree of perfection, or, in other words, to maintain a state of perfect health, it is necessary that all the forces that influence the operation of the laws of life, shall be in the most favorable condition.

A deficiency in the supply of either aliment, atmospheric air, or heat, and its

associated elements, light, electricity, and magnetism, renders the operation of the laws of life imperfect, and necessarily occasions disease.

Nutrition, the process by which nutritive material is converted into living organic structure, is the first vital action. and constitutes, during life, the basis of every other vital movement or function.

Derangement of the nutritive action of an organ, necessarily impairs its functions. The various functions, digestion, respiration and circulation, subserve the purpose of furnishing the necessary supply of nutritive materials ; and calorification and enervation are the sources of motion.

Simultaneously with the nutritive or assimilative action, there is a constant decomposition process being carried on, by which worn-out material is taken up and expelled, mainly by the kidneys and through the pores of the skin. The latter constitutes the great outlet of morbid humours from the system ; and this fact makes manifest the importance of promoting perspiration as a means of clearing the system of disease.

In the inferior animals, and vegetables, the vital actions are capable of suspension, without their destruction ; the organic force diminishes, but is not entirely extinguished. On the renewal of stimuli, the vital phenomena again reappear, and the organic force is renewed. These facts are seen in hibernating animals, and in vegetables in the temperate latitudes, having alternate seasons of opposite temperature.

The abstraction of the stimulus of heat diminishes the vital actions ; the functions of the various organs essential to life are gradually suspended and almost every trace and sign of animation are lost. With the renewal of the stimulus of caloric, whether artificial or solar, reanimation commences ; the vital actions are reawakened ; they are manifested in their fullest energy ; and the organic force which had been nearly extinguished, acquires its former intensity. In the higher order of animals, and in man, "vital actions once commenced, cannot be again suspended for any length of time ; they have different degrees of energy ; but if once terminated, or reduced to a certain point, they are not again renewed ; their cessation is permanent, and with them cease the organic forces. This constitutes death." The human system is endowed with power to react against causes that tend to its destruction. The impressions produced by the causes of disease being communicated to the brain by the nerve of sensibility, a recuperative action is instituted, with the design of expelling the cause of disease.

Nature is the real physician ; in other words, diseases are cured, wounds healed, and injuries repaired by processes of actions or movements under the control of the vital principle or laws of life. These curative processes are manifested by fever, inflammation, vomiting, diarrhœa, and convulsions.

So far as we aid nature we do good, but when we give agents at war with the natural process, then we do an injury.

The nervous, or electro-magnetic fluid, which under the vivifying influence of caloric, and acting in conformity to the organic laws, is the immediate or proximate agent of every vital movement, is generated from red globules of blood, as they circulate through the nerve centres. All recuperative, life-sustaining actions are carried on through the agency of the nervous fluid.

The nerves of the internal mucous membrane, especially those of the stomach, exercise a controlling influence over the digestive, nutritive, and all other vital functions.

The amount of nerve force generated will be in the same ratio to the quantity of red globules of blood circulating through the nerve-centres; and, consequently to abstract blood by the lancet, or to prevent its formation by poisonous drugs, taken into the stomach, that impair digestion, retards the curative operations of nature.

In disease the digestive functions are either impaired or suspended, and, consequently, the system is partially or wholly deprived of a supply of the means of subsistence from the natural source.

This important fact, it would seem, has never been taken into consideration by medical theorists, inasmuch as their general course of treatment directly tends to lessen the amount of blood, or to produce greater prostration of the digestive functions. The supply of nutritive material from food being cut off, in consequence of a suspension of the digestive functions, vital action soon would cease, were it not that nature, but more properly the Author of nature, has provided a means for sustaining life by a process of reaction constituting fever. The pores of the skin are "locked up," retaining the heat; the action of the heart is quickened, giving increased impetus to the circulation of the blood through the nerve-centres, to sustain the various functions; and being impelled through the lungs more rapidly, with a corresponding increase of respiration, the blood thereby becomes more highly vitalized, and better adapted to sustain the recuperative actions necessary to overcome the influence of the cause of the disease. In malignant forms of disease, for instance in that class termed "continued fevers," the life of the patient depends upon the continuance of the recuperative action—the fever—until a favorable crisis is effected.

It is by action—by vital movement—that disease is overcome.

The direct tendency of cold, poison, and other causes of disease, is to suspend vital motion, weakening the power that sustains nutrition or vital chemistry.

The lower order of animals, those not endowed with the power to react, never have fever, neither can inflammation be established in them; whereas in the higher order and in man the brain is made to know of the existence of disease, and establishes a recuperative process constituting fever and inflammation. Hence most of the symptoms of disease are the result of the protective power of the economy in operation—the efforts of the system to sustain itself, and to throw off the disease.

The most fatal cases of disease are those unattended by fever; for instance in small-pox and scarlet fever, the specific poison producing the disease operates, in some cases, with such deadly power, that the vital forces are at once prostrate below the point to admit of reaction; the patient remaining cold and partly insensible from the commencement of the disease, until the spark of life is extinguished.

The cold plague, as it was termed, which proved so alarmingly fatal in some parts of the old world, was characterized by coldness and absence of fever. This was also a peculiar feature of the Asiatic or epidemic cholera—the function of

nutrition, and, consequently, that of calorification and enervation, being, in many cases, suspended in the very outset of the disease.

The amount of vital power in the system is always less in disease than it is in health.

In fever of even the highest grade, there is always a diminution of the life-power—nature fans the fire of life by forcing the blood through the lungs at increased ratio, and quickening the respiratory movements.

These are the means furnished by the Creator to supply the necessary wants of the system, when the stomach cannot digest food.

The stomach is the great repository from which the body receives its support, and its condition exerts a widely extended influence over the system. Being the recipient organ for all food, drinks and medicines, and from its "central and exposed position and extraordinary sympathies," this organ is extremely liable to become disordered and its functions impaired from many sources, and seems to be the organ which is first affected in nearly every variety of disease. While the functions of the stomach remain unimpaired, the causes of disease are repelled, but when suspended or impaired from any cause whatever, the secretions become vitiated, the circulation flags, the nutritive action diminished, and the animal temperature lowered.

These conditions are the immediate consequences of disorder or suspension of the functions of the stomach.

Under favorable circumstances and conditions, nature will rally and bring into operation a counteracting influence for the preservation of the system, constituting the recuperative processes previously described. The influence of cold in engendering disease may be traced to its prostrating effects upon the digestive and nutritive functions.

Food taken into the stomach, unsuited to the state of the digestive functions, is a common source of disease. Food remaining undigested in the stomach becomes an enemy to health; and at particular seasons, and under certain conditions, actively poisonous agents are formed by chemical changes taking place between the elements of food and the acrid secretion of the stomach producing cholera morbus, epidemic cholera, malignant dysentery, etc.

At seasons when an epidemic disease is prevailing inaccuracies in diet form a very common exciting cause of the disease in those predisposed to it.

Vomiting, and all other disease expelling and curative actions, are instituted and carried on by a power generated at the base of the brain—the medulla oblongata. This is the seat or throne of power, whence proceed the commands for all movements designed to protect the system from disease. The nerve centres throughout the system, apprise the *great centre* of the condition and wants of the system through the medium of the nervous cords, which may be compared to telegraph wires.

The great centre, taking cognizance of the intelligence thus conveyed, commands the movement within its control best adapted to overcome enemies and supply existing wants.

Thus, the infant stomach, oppressed by too much food, or disturbed by the presence of foul or acrid substances, is relieved by vomiting.

The knowledge of the condition of the stomach being telegraphed to the base of the brain through the medium of sensitive nerves, vomiting is induced, and this is a provision of nature to relieve the stomach.

A badly organized stomach, or one in which the nerves or sensibilities are not in a condition to convey to the brain the knowledge of the presence of acrid substance will be subjected to pain and distress in consequence of the transmission of the acrid materials from the stomach to the bowels, there producing an effect which calls for reaction to expel the acrid substances.

In medicine, error in theory leads to error in practice.

The physician, educated to regard fever as constituting disease, and the increased action of the heart and the arteries, necessary to sustain the curative actions, as excess of vital power, is led to practice blood-letting, blistering, purging and to prescribe antimony, nitre, calomel, digitalis and various other poisonous agents, with a view to moderate or suppress those actions; and notwithstanding the evil consequences of such practice, the same course of treatment is pursued as long as the theory, by which the practice is governed, is believed to be true.

Nature always conducts her operations for eradicating disease in the best way possible, with the resources furnished by internal and external conditions and circumstances. Every movement, whether voluntary or involuntary, is attended with an expenditure of nervous fluid derived from arterial red blood. Active exercise demands an active circulation of the blood through the nerve centres, which generate the nerve force requisite to produce muscular action. One in whose system there is a deficiency of red blood will, in ascending a flight of stairs, experience an increase in the action of the heart to probably 160 or 180 beats per minute; this increased action being absolutely and essentially necessary, in order to generate power to perform the required exertion.

The exercise of running is accompanied by a more violent action of the heart, otherwise the muscular action required could not be performed.

In disease, whenever the action of the heart is augmented, there exists a necessity for it.

Thus in fever, inflammation, extreme debility, etc., its energy is invoked for the accomplishment of an object or design, ultimately for the preservation of the system. Physicians should study the designs of nature and endeavor to assist her efforts.

Medical treatment, to prove beneficial, must harmonize with the principle of life. Pain may be relieved by stupefying the brain with narcotics; fever may be subdued by prostrating the vital powers; the heart's action may be lessened by the administration of digitalis and other sedatives; and inflammatory action may be reduced by cathartics and general depletion; but such treatment operates always against nature, directly and invariably tending to deprive the system of the means to support and to weaken its power of resisting the cause of disease. "Physicians," observes a celebrated teacher of medicine, "has always looked at the outside of disease, and have been doctoring symptoms without understanding the nature of disease."

Perfect health may be defined to be that state in which external and internal conditions and influences are favorable to the free and undisturbed operation of

the laws of life; that condition of the living body in which all the vital, natural and animal functions are performed easily and perfectly and unattended with pain.

It consists in a natural and proper condition and proportion in the functions and structure in the several parts of which the body is composed.

From physiology we learn that there are certain relations of these functions and structures to each other and to external agents, which are most conducive to their well being and permanency, which constitute the condition of health. States, which are deviations from the due balance between the several properties or parts of the animal frame, constitute disease. The most perfect state of health is generally connected with a certain conformation and structure of the bodily organs, and well marked by certain external signs and figures; a well proportioned body, calm and regular circulation of the blood, free and full respiration, easy digestion, etc.

Disease consists essentially in diminished vital power. Man's body resembles a stately mansion, constructed of beautiful but very perishable materials, all of which are needing repairs to keep up the shape and utility of the building. But not all in equal degrees; some portions may stand unaided for years, while others may need hourly looking after. When the occupant leaves the building repairs cease, and then we see all the materials, one by one, falling into ruin. What, then, raises to the rank of living creatures, and clothes with loveliness, the masses of organic matter which are growing, moving, breathing, thinking all around us?

It is the power of the individual life to create its own individual form. It is the form which constitutes the self.

The organic materials are the property of the form only so long as it retains them, and no longer—they are a floating capital. Over the innate essential elements it has no control. Life cannot make the brute materials which it uses live longer than that which it leaves unused, but it has the power of making them anew and building them up into a certain shape for the time they are made to last.

In short, life rests on the metamorphosis, or renewal of the body, as this renewal is more thorough, the individual is more perfect, if it stops altogether, the body is no longer living. If it partially stops there is disorder, or what we call disease. Health is the perfect harmony of the human mechanism—a superabundance of life—an excess of vital action cannot exist.

We cannot have a too active metamorphosis of the tissues, for the fresher their organic constituents, the more serviceable they are, incessant change is the organic law.

The most active metamorphosis of the body possible, the highest possible development of life, is health. The complete cessation of the metamorphosis is death. The partial cessation or arrest is disease. In death the flesh goes on decomposing as during life, but there being no renewal the form is lost. In disease waste goes on, perhaps more rapid, but renewal fails, incomplete or degenerate tissue are formed.

Equilibrium of the vital forces depends upon perfect harmony of two forces

carried on simultaneously; destruction and construction both are necessary, there must be no deficiency of either, for a preponderance of one over the other in any part, or a deficiency, constitutes a deficiency of life, (a disease) an absence of health. To overcome this deficiency of life is the sole aim of treatment of disease; to ascertain how vital functions can be increased or diminished; how a balance can be maintained is the sole object of the physician.

Symptoms do not constitute disease. They are the immediate consequence of diminished vital power, or they may arise from the restoring efforts of the constitution. Thus the first symptoms in disease, as languor and debility, coldness of the surface and chilliness are the immediate effects of a loss of vital power, whereas when re-action takes place many of the accompanying symptoms, as fever, pain, inflammation, vomiting, diarrhœa and convulsions, are the consequences of the vital force resisting the cause of disease.

Disease is produced by agents or causes which exert an influence upon the system not *congenial to the vital principle, or which are not in relation with or adapted to the laws of life.*

Exposure to cold and dampness; sudden vicissitudes of temperature, more especially when the system is in an exhausted condition; exclusion from the open air and close confinement to business; unwholesome food taken into the stomach; excesses in eating and drinking, and in the indulgence of the animal passions; and specific, poisonous agents, such as produce small-pox, measles and scarlet fever, are the general sources of disease. Cold and dampness are fruitful sources of disease. Their direct effect upon the system is to weaken the vital power, and consequently diminish and subvert the healthy order of action in the system, and whatever organ or part of the body is weakest, proportionately to its natural degree of vitality, that will be the part most likely to become diseased. Hence, of any number of persons exposed to cold and dampness, each may have a different form of disease.

Thus one may have a pleurisy, another rheumatism, a third a simple catarrh, a fourth quinsy, a fifth bronchitis, a sixth neuralgia, a seventh sick headache, whilst another may be taken with bilious fever, and another with erysipelas. In this way almost every variety of disease may be brought on by the same cause.

Marsh miasmata. The poisonous effluvia, or vapor, arising from decomposition of vegetable matter, together with cold and dampness, are believed to be the principle cause of the fevers that prevail during the latter part of summer and in autumn, more particularly in low, marshy districts of country. It is certainly true that fevers prevail most in marshy places and near ponds of stagnant water. Newly cleared land evidently gives rise also to noxious vapors from the decomposition that ensued on the exposure of the fresh earth to the sun. This will account for the prevalence of disease in newly settled places. The first effect of this *miasmata* upon the system is to weaken the vital powers. The strength becomes enfeebled; the appetite fails; there are languor, chilliness and aching pains—precisely such symptoms as might be produced by exposure to cold and dampness. These symptoms are the direct consequence of the poisonous effluvia weakening vitality, and as the constitution rallies to expel the poison, fever is produced.

The greater part of medicines employed by other systems of practice have no relation to the laws of life, but are repugnant to nature and injurious to the constitution. Such agents will modify symptoms or change the form of disease, but often where a cure is effected it is the result of the sanative efforts of the constitution, in spite of medicine.

When fever prevails it furnishes evidence of the existence of an offending cause in the system, and the treatment instituted should have for its object the removal of that cause. Thus an emetic will in many instances dispel fever by evacuating the stomach of acrid secretions and undigested food, from which cause so frequently proceed febrile symptoms, more especially during infancy and childhood.

Dr. Samuel Thomson, in his "Remarks on Fevers," says:—"What is commonly called a fever is the effect and not the cause of disease. It is the struggle of nature to throw off disease.

"The cold causes an obstruction and fever arises to remove it. This is universally the case. *Remove the cause and the effect will cease.*" This theory of fever advanced by Dr. Thomson, and doubtless original with him, was maintained by Hypocrates, Sylvius and others of the early writers on medicine.

But the failure of their practice arose from the employment of remedies which tended to *aggravate* rather than *assist* the efforts of nature. The American practice is the only system that has ever made the proper distinction between *pure* stimulants, which raise and support vital action, and those which *provoke* an unnatural action and ultimately exhaust the strength. It is to the founder of this system we are indebted for the discovery and selection of medicines which harmonize with the laws of life, and if judiciously applied are adapted to the cure of every variety of disease.

Where a patient is treated upon the rule of contraries, where one irritation is set up to correct another, we have both the disease and the doctor to contend with. Anything calculated to reduce the vital powers, whether it is the lancet of the old fogey or the depleting blisters and purgatives of latter day practitioners, is contrary to natural laws and tends to lessen the chances of recovery.

This plan of treatment would make a well man sick, and, continued long enough, produces exhaustion of all the vital powers. This being true no practice that ignores the workings of nature can be successful in the treatment of disease.

The specific Medicationist, the expectant Homeopathist and the contrary Allopeth will alike fail in the management of disease.

When they destroy the vital or heat producing powers of the patient in fever they but add to the power of the germ, or poison, and instead of aiding the patient, aid the destructive process. When we keep up the inward heat above the outward we aid the vital powers to throw off the cause of the fever. In tracing the progress of fever to a favorable crisis we find it terminating in a restoration of the secretions, and by establishing some critical evacuation, more particularly by perspiration and urine.

This fact points out the design of nature in establishing fever or re-action.

The American system of practice will assist the continual effort in bringing

on a re-action. But take a case of remittent fever, bleed this patient every day, put him on low diet, purge with active cathartics, give him freely of ice water to drink, and pursue this course for a week, and in nine cases out of ten the fever will at the end of this time assume a malignant type, and the patient very probably die, in consequence of the system being deprived by the treatment of the power to resist disease.

It is by *reaction*, or *the power of vital resistance*, that the organization is sustained against all debilitating causes. Dr. Parrish, in lecturing his class related the case of a man who had been for a length of time subject to frequent losses of blood from piles, and subsequently underwent an operation by which he lost a large quantity of blood. This, in a few days after the operation, threw the system into a state of tumultuous excitement—the face red, eyes sparkling, with a full, bounding pulse and the carotid arteries throbbing very strongly, and, as the doctor stated, the patient exhibited symptoms which every surgeon would have believed demanded bleeding, when at the same time the patient was drained of almost all his blood.

Not many years ago one of the surgeons in Blockly Hospital, a man of extensive experience, having been fourteen years in practice, on examining a patient in one of the wards, inquired of one of the house physicians why that patient had not been bled, and immediately directed a pint of blood to be drawn.

The doctor was informed, however, that this patient had a surgical operation performed a few days previous, and that secondary hemorrhage had taken place and the patient had been already nearly bled to death.

The frequent abstraction of blood has repeatedly produced symptoms of inflammation of the brain, and the arterial system thrown into a state of great excitement, presenting the same symptoms which, according to the doctrines of the schools of medicine, require the use of the lancet, the loss of blood being, at the same time, the sole cause of the excitement; the constitution reacting against the threatening danger arising from the loss of blood. Often has inflammation of the brain ensued in remittent fever, and the disease assumed a malignant character by bleeding or purging, or by both, reducing vitality so low that nature has been driven to rally all her powers to “save a wreck,” the clashing forces struggling for the ascendancy, which, too often, is decided in favor of the foe to life, aided by this irrational plan of treatment.

Excessive loss of blood is not always followed, however, by reaction; in some instances, the system remaining in a state of debility, accompanied by some chronic disorder, as dyspepsia, liver complaint, consumption, dropsy, etc.

“In disease of the constitution, *fever* is nature’s handmaid. In local disease her chief reliance is upon inflammation.”

Inflammation is required in the healing of wounds. Blood furnishes the material for repairing injuries, and its presence is also necessary for sustaining vitality in parts surrounding an injury. A splinter lodged in the flesh and allowed to remain, creates a necessity for inflammation in order to effect suppuration, the means by which bodies become detached and separated from living tissues. The poison from a bee-sting occasions severe pain; blood is sent quickly to the part, and there deposits coagulated lymph, blocking up the cells of the cellular

tissue, for the purpose of preventing the poison being absorbed and carried into the circulation. If the poison be neutralized by the application of ammonia, then there will be no occasion for inflammation.

If from exposure to cold and dampness, or from any other cause, an obstruction takes place in the capillary vessels of the pleura, the knowledge of this condition is communicated to the brain; the energies of the heart and arteries are invoked; the blood rushes to the part to overcome the tendency to disorganization; and if the circulation be restored there will be no necessity for inflammation. If, however, the reaction fail of removing the obstruction, inflammation is the next step taken in the curative process; which, under the most favorable circumstances, will terminate in resolution; or, if this cannot be affected, there will be an effusion of serum, or an exhalation of lymph, or the inflammation may terminate in the formation of pus, in consequence of the loss of vitality in the pleura.

Inflammation of the brain, as it frequently occurs, as a consequence of exhaustion of vitality in the complaints of children, is the protective power of the economy in operation to sustain the vitality of the brain, and if the designs of nature, in establishing inflammation be accomplished, the crisis will be favorable. In hip disease, the condition of the parts make it necessary that inflammation shall be established.

The vitality of the diseased parts cannot be preserved without inflammation, and, under favorable circumstances and correct treatment, the inflammation may terminate in resolution, and the parts be restored to a healthy condition. Under circumstances less favorable, there will be ankylosis of the joint—the joint becoming stiff. This is, next to resolution, the most favorable termination of the recuperative action. If the vitality of the tissues cannot be preserved by the restorative effort, suppuration becomes necessary;—the dead parts become separated from the living parts by the suppurative inflammation. Sometimes the head of the bone loses its vitality, requiring it to be removed by a slow process of suppuration, or caries, effected by an inflammatory action.

Inflammation of the bowels, as it occurs, for instance in dysentery, is established for the purpose of preserving the vitality of the mucous membrane. The most fatal cases of dysentery are those unattended by any marked symptoms of inflammation;—the violence of the cause of the disease producing disorganization of the mucous membrane in the outset of the disease. The death of the parts in fatal cases of dysentery is not the consequence of the inflammation.

The condition of the lungs at the time tubercles are deposited, is the opposite to inflammation. When the tubercles become enlarged, nature establishes an inflammatory action around the tubercles for the purpose of bringing about suppuration, the only way by which tuberculous matter can be removed from the lungs.

If a dose of violent poison, such as arsenic, prussic acid, opium, or veratrum, be taken in sufficient quantity to cause death, in the course of a few hours there will be no marks of inflammation in the stomach after death. The vital principle will be destroyed before any curative effort can be established. If a portion of bone loses its vitality, either by the use of mercury, or other poison, or from

scrofula, inflammation is absolutely necessary, in order to remove the diseased bone, and to repair the injury by the deposition of new bone. When the vitality of a bone is not too far reduced, it may be restored to a healthy condition by means of inflammation. A broken bone cannot unite without inflammation.

Cases have occurred where broken bones have been prevented from uniting by bony union, in consequence of the parts having been frequently subjected to motion, breaking up the knitting of the bone, until finally the inflammation has subsided, and the parts not being supplied with sufficient blood to furnish the material and sustain the action necessary to unite the broken bone, a false joint has been formed.

Dr. Physic devised a plan for effecting a reunion of the bone in such cases, by forcing a threaded needle through the limb, between the surfaces of broken bone, and leaving the thread in the part, for the purpose of exciting inflammation, and thus furnish the means necessary for a reunion of the bone. Although inflammation be a restorative action, it is liable to become perverted into an unhealthy one, and the accomplishment of the object for which it is instituted prevented.

Thus, if a person of scrofulous constitution, or whose system is in an otherwise unhealthy condition, should receive a bruise which destroys the vitality of a portion of flesh, the inflammation that ensues will be extremely liable to assume an unhealthy character, the efforts of nature being too feeble to establish healthy inflammation, and instead of being circumscribed, as in case of a boil, it may spread over a considerable extent of surface, forming what is called erysipelas; and when matter is formed in the injured part instead of being confined to the spot where it is secreted, as it is when the inflammation is of a healthy character, it spreads to a greater or less extent through the surrounding parts which become swollen, doughy, and without extra heat attending, and may require a long time for the parts to become restored to a healthy condition, in consequence of the want of power in the system to establish an efficient inflammatory action. A simple incision in the flesh from a sharp instrument that heals rapidly in a healthy constitution may become converted into an indolent ulcer in one of an unhealthy constitution. An injury upon the shin that would be followed by healthy inflammation, and the part restored to a healthy condition in a short time, in a young man, would be apt to become converted into an indolent ulcer, and probably continue for years in an old man of feeble health. The *healing power* is sometimes almost destroyed in constitutions poisoned by the use of mercury, the simple scratch of a pin causing a long continued running sore. Blisters have occasionally been observed to become gangrenous in consequence of extreme prostration of the healing powers of the system; the constitutional energies becoming too far exhausted to establish healthy inflammation, and to sustain the action necessary to heal the parts.

Inflammation may assume an unhealthy character in consequence of the severity of an injury. This fact is frequently noticed in gun-shot wounds, the surrounding tissues being deadened by the force of the concussion, the vessels of the parts have not sufficient power to carry on a healthy inflammatory or restorative action.

"Let us suppose," observes Astley Cooper, "that two women, each receives a

blow on the breast, one with a vigorous and healthy constitution, and the other with a system worn down with care, anxiety and disappointment, and in a state of chronic, feverish excitement, in which the secretions are imperfectly performed, and is thus predisposed to the formation of cancer. In the first individual, the inflammation will be strictly healthy, going through its several stages until the cure is accomplished; but in the other, owing to constitutional peculiarity, the same extent of injury will produce cancerous disease, an affection over which all remedies hitherto tried have little control, and extirpation is but an uncertain mode of relief."

Inflammation in internal organs is no less curative in design than when it is confined to external parts of the body. Poison, taken into the stomach, is followed by inflammation of its mucous membrane, unless the dose be so large as to destroy the vitality of this organ. The direct tendency of poison is to destroy the principle of life and inflammation is the means which nature employs to counteract the effects of the poison, and preserve the life of the parts.

The inflammatory action, existing in the mucous membrane of the stomach, in those forms of disease called fevers, is the restorative power of nature in action. No person ever recovered from a low form of fever without some degree of inflammation having existed in the stomach. In inflammation of the stomach, medicine should be given that will excite the secretions. Inflammation of the throat is relieved, and its efforts aided by gargling with tincture of capsicum, diluted, which excites the secretions and relieves the congested vessels. It is ascertained that the mucous membrane of the stomach seldom exhibits marks of inflammation when patients die soon after an attack of some highly malignant form of disease, for instance yellow fever; the force of the cause of the disease having suddenly prostrated the living principle so low that the constitution is unable to establish an inflammatory action.

In pleurisy, inflammation of the lungs, rheumatism, erysipelas and other forms of disease attended with inflammation, conditions obtain which call for inflammation—the disease always existing before inflammation ensues.

Thus, in pleurisy, the nutritive action being arrested, in a portion of the pleura, by debilitating influences, and its disorganization threatened, are conditions which call for a supply of arterial blood, and an inflammatory action, as the only means of effecting a restoration of the nutritive or assimilative action and sustaining the organization. Not less salutary are the effects of inflammation, rheumatism and erysipelas.

Curative in design, the results of fever and inflammation are always beneficial under favorable conditions. Finally, whenever nature is called upon to repair an injury, or to protect an organ or tissue from disorganization, she performs the work by means of inflammation, aided sometimes by fever.

It must be borne in mind, however, that the *efforts of nature* often require the aid of medicines and other means for regulating and sustaining her restorative actions. In the case of a common boil, for instance, or in any other case of acute inflammation, there may be an undue accumulation of blood in the diseased parts, causing unnecessary pain and swelling and retarding the cure.

More especially are the resources of art demanded in the diseases attended with inflammation of internal organs, such as pleurisy, inflammation of the lungs, dysentery, peritonitis, inflammation of the brain, etc.

The principles of medicine may be deduced in part from a knowledge of animal structure and function, (anatomy and physiology) conjoined with an acquaintance with the agents which cause and remove disease; but chiefly they are derived from a generalization of facts observed in an extensive study of disease itself, and its effects in the living and in the dead body.

But so far as they have been ascertained, they become more intelligible to the student if explained synthetically, by describing first the causes of disease, then their operation on the body and lastly, the resulting changes in function or structure which constitute disease in its most elementary forms. Etiology, or a knowledge of the *causes of disease*, will introduce us to to their effect—*disease* itself; the nature and constitution of which will then be considered under their appropriate heads.

ETIOLOGY.

THE CAUSES OF DISEASE—NATURE AND DIVISION OF CAUSES.

Causes of disease are those circumstances which essentially precede it, and to the operation of which its occurrence is due. In many instances these circumstances elude our observation; in many others the true cause, if apparent, is combined with other antecedent circumstances which have no share in producing the disease, and yet are liable to be mistaken for causes. These circumstances are to be sifted and the true cause discovered, only by the attentive observation of large numbers of cases in which disease is produced. The non-essential circumstances will then be found to be sometimes absent, and that which is always present may be fairly regarded as the cause.

But this, as before stated, sometimes eludes observation, and both in this case, and in elucidating the operation of circumstances supposed to act as causes, the most useful knowledge may be obtained from an investigation of the ultimate nature of disease itself which will often throw light on the cause which has induced it.

Thus it was long a matter of doubt whether the itch could be engendered from filth, as well as from contagion; but since microscopic investigation has discovered the existence of the itch mite, no doubt remains that this insect is the only essential cause of the disease. •

The causes or circumstances inducing disease may be *intrinsic*, or existing within the body independently of any obvious external influence, or they may be *extrinsic*, having their origin without the body. As examples of intrinsic causes may be mentioned excess or defect of some function, as irritability, or of some constituent of the body as the blood. Extrinsic causes are very numerous, comprising all the external agencies which can operate on the body or mind, such as temperature, air, moisture, food, poisons, mechanical and chemical influences, sensual impressions, etc., etc.

A great variety of agents and circumstances may thus act on the body so as to produce disease; but in most instances there is not that uniform and constant relation between these as causes, and the disease as effects, which we might expect from the analogy of causation in the simpler sciences. In chemistry and in mechanics, effects certainly and uniformly follow causes; in physiology and pathology, no doubt, effects also ensue; but whether these effects shall be manifest as disease or not, will depend on many circumstances, of which we often cannot take cognizance. It is true that when the causes resemble an act like those of physics or chemistry, their proper effects will not fail to ensue.

Thus a cutting instrument, a red-hot iron, or a corrosive liquid, will not fail to produce disease, because its operation is so energetic as to overcome all vital properties by physical and chemical force, and disorder must follow. Further, certain poisons and other potent agents, which act on without destroying the vital properties of living parts, may also, if of sufficient strength, pretty constantly produce morbid effects.

Thus opium, taken internally, causes somnolency ; lobelia excites nausea and vomiting ; cantharides applied to the surface induces inflammation, etc.

But the common causes of disease are seldom of this decided and positive character ; they are often present without disease ensuing, and they are known to be causes only because disease is observed to ensue in a greater number of cases when they are present than when they are absent.

Thus, improper food is a cause of indigestion, and exposure to cold is a cause of catarrh ; yet many persons eat unwholesome food without suffering from indigestion, and many are exposed to cold without "taking cold." But those who *do* suffer from indigestion observe that they do so more after taking improper food, and those who *are* affected with catarrh can often trace it to exposure to cold.

The reason of this uncertainty of action is chiefly in various powers by which the body resists the morbid influence ; which powers vary much under different circumstances. The failure or irregular operation of this power constitutes one predisposition to disease.

Causes of disease were formerly divided into *remote* and *proximate* ; the remote include both the *predisposing* and exciting causes, the only circumstances now considered as causes. They were called remote, not because they are distant or not in the body, but because they are not, like the proximate cause, a constant and present part of the disease. The term *proximate* cause was used by Cullen, (after Gambius) to represent the pathological condition, or essential bodily change, on which the symptoms depend ; and it was called a *cause of the disease*, because diseases were by him defined to be an assemblage of symptoms.

But this essential bodily change is rather a part of the disease than a cause, and must be considered under the head of *pathology*.

Discarding, then, the term proximate cause, we have only to consider the predisposing and exciting causes.

The co-operation of both these kinds of causes is generally necessary to produce disease. A number of persons are exposed to cold ; one gets a sore throat ; another, a pleurisy ; another a diarrhoea ; another some form of rheumatism ; and a fifth escapes without any disease.

All five were exposed to the same cause ; yet it acted differently on all. The four first were *predisposed* to the disease which attacked them as soon as it was excited by the cold. The fifth had no predisposition ; the *exciting* cause was therefore powerless ; it was insufficient without the predisposing cause, as in the other cases, the predisposition was insufficient until the exciting cause, the cold, was applied.

In some cases, however, where sufficiently strong, what is in a smaller degree

a predisposition, in a greater degree constitutes a sole cause of disease; thus a person with a very weak stomach always has indigestion, whether an exciting cause be applied or not.

So likewise exciting causes, if sufficiently strong, may produce disease without predisposition; thus a person not predisposed to indigestion may be pretty sure to earn it if he take a sufficient quantity of fat, raw cucumbers, pickled salmon, or any other such indigestible matter.

Take another example. A healthy person living in a marshy district may not get an ague until he becomes debilitated by any cause such as cold, or fatigue, then the poison will act. But without his being thus weakened, if the exciting cause be made stronger by his sleeping on the very marshy ground itself then the poison may act without predisposition, and the ague begins.

The consideration of these facts throws some light on the nature of many predisposing causes. There is, in organized beings, a certain conservative power which opposes the operation of noxious agents, and labors to expel them when they are introduced. The existence of this power has long been recognized, and in former days it was impersonated. It was the *archæus* of Van Helmont; the *anima* of Stahl; the *vis medicatrix naturæ* of Cullen. But without supposing it to be aught distinct from the ordinary attributes of living matter, we see its frequent operation in the common performance of excretion, in the careful manner in which the noxious products of the body, and offending substances in food, are ejected from the system; in a flow of tears to wash a grain of dust from the eye; in the act of sneezing and coughing to discharge irritating matters from the air passages; and in the slower, more complicated, but not less obvious example of inflammation, effusion of lymph, and suppuration, by which a thorn or other extraneous object is removed from the flesh.

This *vis conservatrix* is alive to the exciting causes of disease, and in persons of full health, it is generally competent to resist them.

How it resists them will depend on what they are. For instance: Is cold the cause? This throws the blood inwardly; which, by increasing the internal secretions, and exciting the heart to increased action, establishes a calorific process which removes the cold. Is the cause improper food? The preserving power operates, by discharging this speedily, by vomiting or by stool. Is it a malarious or contagious poison? It is carried off by an increase of some of the secretions. But if this resisting power be weakened, locally or generally, or if the exciting cause be too strong for it, then the cause acts and disease begins.

In the cases hitherto noticed predisposing causes consist in absence or deficiency of power, rather than the existence of anything positive; but sometimes predispositions depend on something positively wrong in function or structure, which alone may scarcely amount to disease, and this error may be congenital or hereditary or acquired from previous disease.

It must be observed that predisposing causes operate chiefly through the constitution, or some of its powers; hence they are often called *constitutional* or *internal* causes, in contra-distinction to the exciting causes which are more commonly *external*.

But these terms are objectionable, because not always applicable. Some-

times the term *predisposing* is also inappropriate, as in the following instance : Several persons are exposed to a malarious or infectious poison ; some of these afterwards suffer much from fatigue or privation ; they then begin to show the effects of the poison ; others who have not suffered this second trial escape unhurt. The poison has entered the system of both ; the last resist its influence ; the subsequent weakening reduces the powers of resistance in the first-class and exposes the system to the exciting cause ; but occurring after, it cannot be said to *predispose*.

Hence, under such circumstances, the fatigue or privation is called the *determining* cause. The frequent inapplicability of the terms under which the causes of disease are classified, suggests the truth that these divisions of causes are rather conventional and convenient, than natural and philosophical.

The true, simple view of causes, is that they are circumstances inducing disease. If strong, one such may be sufficient ; and if weak, two, three, or more may be required to operate together, or in succession, before that change of function or structure which constitutes disease ensues. Which of these several circumstances respectively disposes, exists, or determines, and would therefore come under the divisions that I have endeavored to explain, will often be very difficult to decide.

PREDISPOSING CAUSES OF DISEASE.

Predisposing causes of disease commonly consist of various circumstances which influence the functions or structures of the body in an unfavorable manner, yet short of actual disease. It will be useful to illustrate them by examples, which I will group under the following heads :

1. Debilitating Influence.
2. Excitement.
3. Previous Disease.
4. Present Disease.
5. Hereditary Constitution.
6. Temperament.
7. Age.
8. Sex.
9. Occupation.

DEBILITATING CAUSES OF PREDISPOSITION

Are the most numerous of any. So we might expect from the fact that constitutional generally implies power of resisting disease. The weakness which renders the body liable to disease is that specially which enfeebles the heart, and impairs the tone of the arteries ; it is often accompanied with an unusual susceptibility of the nervous system which increases the liability of the body to suffer.

IMPERFECT NOURISHMENT.

From defect either in the quantity or quality of the food, or from incapacity of the digestive powers.

This in itself may cause many diseases, particularly of digestion and nutri-

tion ; but it also weakens the power to resist cold, and produces a liability to low fevers and inflammations, epidemic and contagious disorders. Thus, the susceptibility of the body to cold, and to infection when fasting, is generally acknowledged ; and the rapid propagation of infectious diseases among an ill-fed population, such as the colored race, and laboring classes, is too well known.

IMPURE AIR.

The injurious effects of this are apparent in the pallid, cachectic complexion of the inhabitants of crowded cities, even those who live well and regularly. How do they contrast with the ruddy countenances of the hardy and coarsely fed mountaineers. So do they also in their liability to diseases, particularly to those of the organs of respiration, circulation and nutrition.

One of the most fertile sources of infantile disease, is a want of a due supply of pure and wholesome air ; the effects of which are sure to manifest themselves, though often obscurely, and at a remote period. It is physiologically impossible for human beings to grow up in a sound and healthy state of body and mind, in the midst of a close, ill-ventilated atmosphere. Those that are least able to resist its baneful influences are carried off by the diseases of infancy and childhood ; and those whose native vigor of constitution enables them to struggle through these, become the victims, in later years, of diseases which cut short their term of life, or deprive them of a large portion of that enjoyment which health alone can bring.

EXCESSIVE EXERTION OF BODY OR MIND.

Exercise is beneficial to both body and mind ; but when in degree or continuance it exceeds what the strength can bear, or rest can recruit, the animal functions are exhausted, and lose their balance ; muscular tone is impaired, nervous excitability takes the place of strength, the circulation fails, congestions ensue, the blood is not properly purified, and the various organs are on the brink of disease. It is thus that the fatigued mind or body is peculiarly prone to suffer from causes of disease.

Want of sleep has similar effects ; and when the body is extremely exhausted, even sleep, which is nature's best restorer, is disturbed by the imperfect performance of circulation and respiration in the excess of weakness, hence a liability to insomnia and nervous excitement from exhaustion.

WANT OF EXERCISE, AND SEDENTARY HABITS GENERALLY, form another extreme which favors the production of disease.

The healthy vigor of all the functions of the body and mind is best maintained by their equal and moderate exercise ; and the torpor of inactivity renders them incapable of resisting the causes of diseases.

The muscular function, and with it the circulation of the blood, is the first to suffer ; hence first sluggish movements, and ultimately weakness of the heart and other muscles. The defective circulation is felt most at parts at a distance from the heart ; hence cold extremities, dry skin, congested liver, with its frequent concomitants, hemorrhoids, torpid bowels, and indigestion : whilst the

heart itself and the organs near it may be oppressed and injured by the load of headache, vertigo, somnolency, dulness of the senses, etc.

In nervous subjects, convulsive affections may be promoted by the same inequality of circulation. The respiration being little exercised, the task of decarbonizing the blood is imperfectly performed, or falls more on the liver, hence the accumulation of fat in the textures, and the occurrence of bilious derangements. From this statement it is obvious that sedentary habits, where extreme, may be equivalent to produce disease, and where existing in less degree, they promote its occurrence from other causes, such as irregularities of diet, exposure to cold, violent exertion, etc.

From such combination of influences arise various disorders of the digestive organs, heart, lungs, and brain, catarrh, gout, rheumatism, calculous affections diseases of the skin, etc.

LONG CONTINUED HEAT.

The debilitating effects of this agent are exemplified in warm climates and seasons. Under its influence the muscles, and with them the heart and arteries, lose power and tone, the textures become relaxed, perspiration is profuse, and internal organs, especially the liver, are too much stimulated by blood which has lost more than usual of its water and less of its hydro-carbon; hence the disposition to bilious and liver complaints, dysentery and cholera.

The action of heat is debilitating from the losses the economy sustains from the undue cutaneous secretions, and from the over-stimulation of the nervous system. This debilitating action of heat is increased when combined with moisture.

Diseases of the gastro-intestinal mucous membranes are more especially developed. Under the influence of these two agents combined—heat and moisture—there is a marked tendency in diseases to assume a typhoid or a dynamic form.

Over-heated rooms and excessive clothing likewise predispose to disease by their weakening and relaxing influence. Warm clothing is a source of disease, and very often of the same diseases which originate in an exposure to cold. Over-heated sitting and sleeping apartments, warm, soft beds and bed clothing relax and weaken the frame, disposing to disorders of the renal, urinary and generative organs, and render the system generally much more impressible to external influences. A predisposition is thus induced, not only to catarrh, inflammations, affections of the lungs and rheumatism, but to irregularities in the menstrual discharge. It has been remarked that the females of Holland, who generally use very warm clothing, warm apartments and warm beds and footstoves, are subject to excessive menstruation and leucorrhea.

It may be remarked that most of the diseases of hot climates and seasons occur rather at the termination of the heat than during its steady prevalence, and that therefore it predisposes to, rather than excites, the disease, which is the immediate effect of cold, or of irregularity of diet, or of malaria.

Thus the bilious cholera of this country occurs chiefly in the early autumn when the cool of the evening forms a contrast with the heat of the day. The

chill suddenly arrests the perspiration, and throwing the blood inwardly, oppresses internal organs, especially the liver, whose vital energies have been exhausted by the influence of the previous heat; hence coldness of the surface, and congestion of the liver and portal system, ending in flux, cholera, diarrhœa, dysentery, etc.,

LONG CONTINUED COLD.

The experiments of Chossat and others clearly prove cold to be a direct sedative, capable of reducing all the vital properties.

Cold applied suddenly and for a short time invigorates, because it is followed by a healthy reaction, in which the vital powers are exercised and exalted. But when long continued its own sedative and debilitating effects are permanent; it weakens the circulation, especially that of the surface, causes internal congestions and directly lowers all the vital energies. Hence the most malignant forms of epidemic fever in this country are observed to prevail towards the close of the very severe winters, and all diseases may then assume a typhoid type. This is observed chiefly among the lower orders, whose means do not enable them to protect themselves sufficiently against the inclemencies of the season. We have before adverted to the striking manner in which cold disposes the body to suffer from malaria.

HABITUAL INTEMPERANCE WITH INTOXICATING LIQUORS.

There is probably in this country no source of disease more fertile than this. Besides many which it excites it predisposes the body to attacks of fever, erysipelas, cholera, dropsy, rheumatic and urinary diseases, and if it do not increase the proneness to inflammatory disorders, the habit of intemperance certainly disposes them to unfavorable terminations, and causes many victims to sink after accidents and operations which would be comparatively trifling in a sober subject.

Nor can we wonder at the pernicious effects of this kind of excess when we consider the weakened state of function and structure which stimulating drinks induce, especially in the organs which they most directly effect—the stomach, the liver, the kidneys, the heart and the brain. We shall soon have to explain how such an unsound state of these organs peculiarly impairs the powers of the body to resist or throw off disease.

DEPRESSING PASSIONS OF THE MIND, SUCH AS FEAR, GRIEF AND DESPONDENCY.

Many are the instances in which numbers, as well as individuals, have escaped prevalent disease, until depressed by some unhappy event or apprehension, and then they have fallen victims. Such was instanced in the ill-fated Walcheren expedition, and in many passages in the history of armies in pestilential countries.

A defeat, a failure, or even bad news, made many succumb to the pestilence who had before escaped.

It is a common remark that when a contagious or epidemic disease prevails

those who take most precautions frequently suffer, because they are timid and fearful, whilst the stout-hearted and reckless are unscathed. When the mental energies are depressed by fear, grief, anxiety, disappointment, etc., the powers are less able to oppose the debilitating causes of disease, and individuals, singly or collectively, are, under such circumstances, especially liable to those disorders which are of a general or specific origin, as fevers, etc. There is nothing which more certainly predisposes the system to the operation of the exciting causes of fever than the fear of being attacked by it.

On the contrary, when the mind is elevated by success, hope and confidence, or other exciting passions, depressing causes make little or no impression upon the constitution, and individuals thus circumstanced almost always escape from diseases which readily invade the fearful, the dejected and the disappointed.

Indulgence of temper and passion not only predispose to disease, but frequently excite it, in the nervous, irritable and sanguine temperament. Diseases of the heart, brain, liver, stomach and bowels often originate in these sources. Uncontrolled passions of every description occasion a host of functional and structural disorders of the great viscera, whilst moderation of all the appetites, an equable state of mind, and the moderate excitement accompanying a well-regulated application to business or study, are among the best means of resisting the impression of injurious agents.

EXCESSIVE AND REPEATED EVACUATIONS, EITHER OF THE BLOOD OR OF SOME SECRETION.

The weakening effect of a large loss of blood needs no explanation; but the injurious influence of habitual losses or drains, if there be more than the system can repair, is still greater; for the functions then become depraved as well as depressed, a state of cachexia as well as anæmia is induced, and a little cause may suffice to determine many states of disease.

Various hemorrhages, and discharges, menorrhagia, diarrhœa, leucorrhœa, and other fluxes, if in excess, reduce the powers of life and the capacity to resist disease.

No secretion, however, weakens so much or so irreparably, when in excess, as that of semen.

In many of the lower tribes of animals the males live till they copulate and then die, the reproduction of the species is at the expense of the individual.

That our species is not wholly exempt from this law of organized nature is apparent from the fact that immoderate venery is known to produce extreme debility, and premature decay, and to dispose the body and mind to various diseases.

Pulmonary and cardiac diseases, epilepsy, mania, and other disordered manifestations of mind not unfrequently occur from the condition of the system induced by the abuse of this appetite. It also leads to other maladies by depressing the vital energies of the frame, and rendering it more assailable to the common exciting causes of disease.

PREVIOUS DEBILITATING DISEASES.

It is well-known that the body is unusually liable to disorder during convalescence from serious maladies. It is weak in all its powers; whilst the nervous system often obtaining the ascendancy which is common in states of weakness, renders the body unusually susceptible; and improper food, exertion, excitement, or exposure to cold, may readily produce the former or some new complaint. Hence convalescence from a severe disease is a condition of health that requires peculiar care.

The functions are just resuming their balance, and have neither the vigor of action nor the power of resistance, which is the attribute of robust health. The diseases which leave the body most liable to derangement are those ending in exhaustion, such as continued fevers and protracted and severe inflammations.

Hitherto, we have considered only those circumstances which predispose to disease by their weakening influences. There are others of a somewhat opposite character which favor the production of disease by a state of excitement or activity.

Thus, full living without an adequate amount of exercise, may bring the circulation and other functions up to a high pressure degree of activity without producing disease; in fact, there is a redundancy of health, and there is more than usual capability of resisting those causes of disease which operate by depression, such as cold, malaria, infection, etc. But there is a predisposition to suffer from causes of additional excitement; thus irritants applied more readily induce inflammation; violent exertion may cause hemorrhages, and in any organ the operation of a stimulus may heighten the actions to a pitch that is morbid. So, also, unusual vascular activity in a part, when insufficient to produce disease, renders the part more liable to suffer from external causes.

Thus the determination of blood to the uterus and mammae at certain periods renders them liable to disease at those times. Violent exertion makes the muscles or their fasciæ peculiarly liable to rheumatic inflammation from the subsequent action of cold and damp. Excessive indulgence in a stimulant, diuretic beverage, such as punch, renders the kidneys liable to inflammation, or congestion or exposure to cold. Inflammation or irritation of the intestines is not a common effect of cold, except when these viscera are under the exciting influence of a purgative.

The brain, if previously over-active from hard study, may be excited into inflammation by alcoholic stimulus or strong moral emotion.

Proclivity to disease is not unfrequently caused by *previous disease*, independently of the weakening influence before noticed.

This is particularly the case with some inflammatory and nervous disorders. Thus, a child who has once had croup, is very liable to its recurrence. One attack of enteritis frequently predisposes to its recurrence.

Convulsive disorders, such as cholera, hysteria and epilepsy are extremely apt to recur, and the longer they have existed, the more difficult are they to remove, and the more ready are they to reappear on the application of any existing cause.

This is what may be called a habit of disease which is most important to pre-

vent. There can be little doubt that the previous attack in all such cases leaves some change of structure or function which constitutes the predisposition, although this change may elude our means of detection. Under this head we may mention constitutional predisposition to disease which are to be ascribed not to a previous attack, but to the persistence in the system of a cause of that attack.

Rheumatism, gout, gravel, many cutaneous diseases, dropsy, jaundice, and many others, may be quoted as examples. A person who has once suffered from any of these is very liable to a recurrence on the application of an exciting cause, and this is because, although free from the first attack, he may not be free from some functional or structural imperfection which was the predisponent to that attack, and which may again be brought into operation by the addition of an exciting cause. In most of these cases, the constitutional defect is in some of the processes of assimilation or excretion, this defect being generally functional, but in some cases it is also attended with change of structure, especially in the great eliminating organs, the liver and kidneys. When the tendency to the diseases under notice is acquired, it may be often traced to causes which peculiarly affect these organs, such as intemperance, irregularities of diet, sedentary habits and scarlet fever. Nor can we separate from this class of constitutional causes the predispositions to many structural diseases, such as the tuberculous and malignant formations. Where such have once appeared, there is a tendency to the production of more, although this tendency may be latent until brought into activity by an exciting cause. In the following pages many arguments will be found in favor of the view that the disposition to these diseases is connected with errors in the functions of assimilation and excretion.

DISEASE, ALREADY EXISTING IN THE BODY,

Even when itself latent, often predisposes to other disorders, independently of its weakening effect. Thus tubercles and other tumors, structural lesions of the heart and other organs, often induce irritations or obstructions of the blood vessels which, if not themselves causing open disease, render them ripe for disorder from other causes. Thus a person on the occasion of violent bodily or vocal exertion is seized with profuse spitting of blood, which causes his death; on opening the body many tubercles are found in the lungs, although there had been no obvious symptoms of their existence before the violent effort.

Again, disease of the heart causing accumulation in the veins often leads to congestion of the lungs and liver, and it may only require the addition of an exciting cause, such as sudden exertion or an excess in diet to bring about an attack of asthma or jaundice.

These are mere instances of causes coming into operation by accumulation. Granular disease of the kidneys, which impairs their excreting power renders the body more liable to suffer from infectious and other poisons, and from other exciting causes of disease.

The predisposing causes hitherto considered may be called accidental or ac-

quired. There are others which are born with the individual, and others which arise from circumstances of age or growth.

All these may be supposed to depend on something defective or ill-balanced in the organization which is insufficient to manifest itself until wrought upon by an external exciting cause.

Of the predispositions born with the individual, the most generally acknowledged is *hereditary tendency to disease*. It is well known that scrofula, gout, rheumatism, epilepsy, mania, asthma, blindness and deafness, run in families.

That this depends on individual peculiarities transmitted from parents to offspring, appears from the fact that all children do not partake, or not alike, of the disposition.

Thus it has been observed in constitutional syphilis, a first child born of parents, one of whom has been infected, may be tainted with the venereal poison, whilst the second would be perfectly healthy, a third would be diseased, and a fourth sound, thus alternating as it were. Children born of gouty parents have escaped entirely the disease, but have transmitted it to their offspring, who have suffered from well-marked fits of podagra. Nay, sometimes a whole generation is passed over, and the disease appears in a third. So, too, we see external organization, family likeness differently stamped on different children of the same family. The influence of hereditary transmission is proved by numerous and positive facts; indeed, peculiarities of configuration or feature are not more decidedly transmitted from parents to the offspring than constitutional taint and certain pathological conditions.

It is not simply the influence of the temperament which, endowed with the same peculiarities, tends to produce the same disease, but a settled inherent disposition to such or such pathological development which may be found, even when the resemblance does not exist. Under this influence the disorder may go on, being propagated from one generation to another, or it may stop at one.

But in the latter instance it seems necessary that this influence should be exercised in a regular, invariable and general manner, and in its expression great variety has been observed. Sex, in some families, would seem to modify the hereditary tendency, the females being attacked with one form of disease, and the males with another not analogous. This two-fold effect of hereditary efficiency in the same family would appear to be the result of a double influence, one disorder being derived from the mother, and the other from the father. In cases where the father and mother suffer under different constitutional disorders, a sort of crossing often seems to occur,—the disorder of the father attacking the girls, whilst that of the mother appears in the males. Generally the hereditary pathological tendencies of the mother are more readily transmissible than those of the father.

It must not be supposed that hereditary proclivity to disease commences at birth. In a few instances it is congenital; but in the greater number it is developed by growth or some other circumstances in life.

Gout, for example, is acknowledged to be hereditary. A parent has it in middle or advanced life; his son does not get it until about the same period, sooner or

later, according to whether he lives freely or not. Here is something transmitted from father to son, yet not manifested in the son for forty or fifty years. It has been observed that diseases developed under the influence of hereditary predisposition, generally manifest themselves at an earlier age than that at which the same affection is ordinarily developed independently of this predisposing cause.

There are other instances, and very curious and interesting they are, in which the children of a family succumb to a disorder of which the parents have never exhibited any traces, when subsequently the father or mother, or both, are attacked, and thus the point of departure of the disorder which had exercised a sort of anticipatory action on the offspring is disclosed. This variety of hereditary influence has been frequently observed, and especially with reference to insanity, in which disorder the children are not unfrequently attacked before the parent.

A well authenticated instance of the same manifestation in tubercular disease is recorded by a late authority. A young man of 19 years of age, of fine constitution and great muscular development, after a violent physical exertion, was attacked with abundant hæmoptysis, and shortly after well marked phthisis appeared and he soon died. Neither his father or mother had exhibited any tuberculous tendency, or a young sister, the only remaining child.

When she reached nineteen years of age, the young sister was attacked with pulmonary tubercular disease, and succumbed; and it was not for two years subsequently that the mother, 53 years old, presented the first symptoms of consumption, of which she soon died, thus exhibiting the existence of an hereditary influence whose effects had preceded the manifestation.

Frequently, but not essentially, connected with hereditary conformation, is the peculiarity of constitution called *temperament*, which certainly predisposes to particular diseases. Temperament consists in a predominance or defect of some functions or set of functions.

Thus the *sanguine* temperament implies an activity of the system which circulates red blood and a rich proportion of red particles, manifest in the excitable pulse and flushing cheek of those of this temperament, and further evinced in their quick movements and lively disposition. This temperament gives a disposition to inflammation, determination of the blood and active hemorrhage. The *phlegmatic or lymphatic* temperament is the reverse of the sanguine. It occurs in those with weak pulse and languid circulation, cold extremities and pallid skin. There is a deficiency of red blood and of vascular action and tone, and the proclivity is to watery fluxes, dropsy and other chronic affections. In the *bilious or melancholic* temperament, which is commonly met with in persons of dark complexion and gloomy disposition, there is probably a defective action in some of the biliary or digestive organs which are therefore more liable to derangement.

The *nervous* temperament is externally manifest only by agitation or trepidation of manner. It seems to depend on the excess or want of proportion of some properties of the nervous system, and it predisposes to the disorders called nervous—such as hysteria, nervous pains, spasms, etc. These tempera-

ments may be variously combined. The sanguine and bilious temperament are both subject to scrofula or tuberculous disease. The extreme sanguine and extreme bilious are more subject than those of either temperament not so decided. The word *diathesis* is often used to express a particularly morbid tendency, thus we hear of the inflammatory diathesis, the scrofulous diathesis, etc. It is merely a term signifying disposition, without affording any clue to its true cause.

The last head of predisposing causes to be noticed is *age*. The several changes in organization, as well as in external circumstance, which the animal frame undergoes at different periods of life, may naturally be expected to be attended with corresponding proclivities to disease. I proceed to enumerate a few of these, premising that some of the examples may be entitled to rank under the head of exciting causes of disease, as well as under that of predispositions.

IN EARLY INFANCY

The low calorific power of the body disposes it to suffer from the bad effects of cold, whence the tendency to visceral inflammations. The skin is particularly liable to various eruptions in consequence of its tenderness and the new and drying medium in which it is placed. The redness of new-born children is obviously the result of the action of the air, it is often a vivid erythema, followed by desquamation of the cuticle and a yellow stain of the skin from extravasated hæmotosin, which is erroneously thought to be a kind of jaundice. Scrofulous, and other papular eruptions, often succeed, with impetigo of the face and eczema of the scalp; œdema of new-born children is peculiar to this period of life.

The comparatively virgin state of the alimentary canal at birth renders it peculiarly susceptible of disorder, and a similar trial may occur at the period of weaning. Hence arise diarrhœa, vomiting, colic, waterbrash, atrophy and other ailments connected with disordered digestion, with that form of enteritic disease called cholera infantum, the great desolator of the infantile population of our Northern cities.

The brain, excited by the novelties of the external world, becomes rapidly developed, and in its increased activity and growth, is liable to various diseases, hence the proclivity to hydrocephalous convulsions, etc.

The process of teething adds an irritation which, by its influence on the nervous system, the bowels and the air passages, disposes them to disorder. In early infancy, ratchetism, with gangrene of the mouth, (*cancerum oris*), the various forms of stomatitis and angina, as well as diphtheritic inflammation of the larynx and trachea, are frequently met with.

CHILDHOOD, OR THE AGE FROM INFANCY TO PUBERTY.

The functions most active are those which administer to growth; the organs of digestion and assimilation are therefore obnoxious to disorder, hence derangements of the stomach and bowels, worms, infantile remittent, etc. The activity of the nutritive function gives a preponderance to the fibrinous or protein constituents of the blood, and inflammations which may occur are often attended

with the effusion of much plastic or albuminous matter, hence the products of croup, tubercle, mesenteric disease, etc.

The natural mobility (or activity of the excito-motory system) of childhood predisposes to chorea and kindred affections. At this epoch, too, tuberculous affection of the bronchial ganglia, mesentery, peritoneum, and cerebral meninges, are of frequent occurrence, and present some peculiarities in their course and character, as do also some of the acute inflammations of the pulmonary organs, as bronchitis, pneumonia, the latter generally occurring in the form called lobular. Stridulous, or crowing laryngitis, and whooping-cough, with the eruptive fevers, as scarlatina, measles, and variola and its modifications, are diseases of childhood.

PUBERTY

Brings with it many morbid susceptibilities, chiefly in the female sex, in which the important function of menstruation is to be established. Many and serious are the evils that are liable to be produced by external causes, which check the development of this function. So also when established, this function has its nervous as well as its vascular relations; and where it is irregular or disordered, a predisposition is given to many maladies affecting the blood-vessels and their contents, the secreting organs and the nervous system. This is one of the most important periods of human existence, for during it the development of the organs of reproduction in the two sexes takes place, and the whole economy is brought into full perfection. The organs of respiration and of voice acquire their full growth and tone; the muscles their due proportion; and the cerebro-spinal system its complex and wonderful organization. The instinctive feelings and emotions reach their utmost limits; and many of them, especially those relating to the sexual organs, acquire an ascendancy, and their indulgence becomes a cause of disease. From this source frequently spring impotence and the extinction of families; the infliction, during after life of many of the disorders which proceed from debility, and the exhaustion of the nourishment and vital energy of the various organs; innumerable nervous and convulsive maladies, as hysteria, epilepsy, neuralgia, chorea, melancholia, mania, idiocy, etc., diseases of the heart, disorders of the digestive organs; premature alopecia and old age; the formation of tubercles and the production of pulmonary consumption, and lastly the transmission of weak and decrepid bodies and minds to the offspring, scrofula, rickets, marasmus, hydrocephalous, etc. The pathological tendencies of this age are especially characterized by exalted action. At the approach and commencement of puberty, the glandular system is extremely prone to congestions and inflammations, particularly the lymphatic ganglia of the neck and axilla. Tubercles are rapidly developed in the lungs, and these organs are much disposed to acute and chronic inflammations of their substance and mucous surfaces; pulmonary hemorrhage replaces the epistaxies of childhood, and in females dysmenorrhœa, protracted menstruation, amenorrhœa, leucorrhœa, chlorosis and hysteria appear.

AT THE TERMINATION OF GROWTH

There is another critical period. The cessation of that appropriation of nourishment for the increase of the body that had hitherto been going on, may cause fullness of the vessels, and a disposition to hypertrophy, hemorrhage and inflammation in the more robust; and in the cachectic, to morbid depositions, especially of the tuberculous kind. The same redundancy of the vivifying fluid in active circulation, gives that buoyancy of animal spirits and impulsive energy of feeling and strength which are the characteristics of healthy youth; yet this very exuberance of vital power, if not properly controlled and balanced, may constitute a tendency to disease, either directly, as where excitement rising beyond the limits of health borders on morbid action, or indirectly by leading to excessive exertion and subsequent exhaustion.

Youth is the age of susceptibility to moral and physical impressions, and therefore of liability to the disorders which these are capable of producing.

ADULT AGE

Can hardly be said to predispose to any diseases, unless it be those arising out of mode of life. It is commonly a period of steadier health, because the functions are more evenly balanced; but if the mode of life be unfavorable, bad habits are apt to become established, and by their continuance to induce disease. Thus gout, gravel, rheumatism, indigestion, and various other disorders are apt to occur in middle life, because the predisposition to them is gradually engendered by some error in diet or regimen too slight to excite disease, but sufficient by accumulation to dispose to it, on the addition of an exciting cause. As the age of fifty is approached, the circulation becomes more languid, particularly that of the venous system; hence the frequency of venous congestions and visceral obstructions, with the numerous train of disorders they occasion, as hemorrhoids, inflammations of the great cavities, affections of the heart, apoplexy, paralysis; derangements of the stomach and bowels; gout, rheumatism, diseases of the urinary organs; hysteria, and uterine disorders; hypochondriasis, and mental alienation. It is asserted that ataxis phenomena are more frequent accompaniments of severe disease at this than at any other period. As *age* advances, such habits affect the organization, and accelerate those changes in the fabric by which our existence is limited to a span of years.

It would occupy too much space to enter into the details of all these changes, but some of the principal may be briefly noticed, as illustrating the weakness and liabilities of *advanced age*.

The changes which *old age* induces in the exterior of the body shows a failure of those functions which were active in youth. Instead of muscles, fat and integuments being nourished in the equal proportions that give beauty as well as strength to the form in mature life, the muscles become thin and sinewy; fat becomes scanty, partial or in excess; the integuments are loose and wrinkled, or flat and flabby; the joints stiffen, and the gait loses its firmness and uprightness. These changes in the texture of the body are attended, and probably induced, by altered proportions in the different parts of the vascular system.

The pallid skin of age, contrasted with the ruddy blush of youth, proves the diminished development of the capillary blood-vessels, that great system which sustains the life and nutrition of the body; hence much of the blood that in earlier age circulated on the surface, giving vigor and sensibility to all the external organs, and life and susceptibility to all outward relations, is now accumulated in the interior, and confines its vivifying and nutrient influence more to the internal functions and structures, thus tending to render the individual more isolated and selfish. But the blood thus abounding in the larger vessels is not equally distributed within them. The diminished capillaries intercept some of the force by which the blood is propelled through the arteries; hence this fluid stagnates and accumulates in the veins, which become distended and tortuous, whilst the arteries, exposed to the continued impulsive force from the heart, lose much of their elasticity, and become mere rigid tubes, causing the peculiar hardness of the senile pulse. The nutrition of the textures generally fails in activity, not in degree only, but in kind also, chemical transformations and deposits beginning to show themselves in the different structures. Thus fibrous and muscular tissues exhibit partial conversion into fatty matter, and osseous or petrificative changes encroach on many structures of low organization, exhibiting a tendency to degradation to the composition of mere vegetable and mineral matter.

This altered proportion of the blood-vessels brings with it morbid tendencies, the nature of which will depend much on the great moving power, the heart, now more than ever the prime agent in the circulation.

If the heart be moderately strong, a fair balance may long be sustained, although hemorrhoids, varicose veins, and such irregularities from local obstructions may occur. If the heart be too strong, which is often the case after a life of much muscular exertion, the small arteries may suffer from the unsoftened force of its pulses, particularly in the brain, and there is a liability to apoplexy or palsy; and in mucous membranes there is a disposition to active fluxes; hence catarrh, asthma, and affections of the urinary organs.

The more vascular textures, especially of internal organs, are over-nourished, and increase in size or weight. If the heart be diseased or weak, there will be imperfect circulation and tendency to venous congestions, dropsical effusions, imperfect and disordered secretions, altered nutrition, and a general failure of all the functions which depend on a sufficient supply of arterial blood; hence may arise diseases of the liver, stomach, kidneys, lungs, and in fact of any of the viscera; in extreme cases, the lower extremities actually die for want of circulation.

If, instead of the organs of circulation, we were to take the alimentary, the respiratory, or the urinary apparatus, we should here too find changes induced by age, which show the necessarily limited time that man's organization is intended to last. Old age is thus attended with increasing infirmities and liabilities to disease. The very strength and activity which some functions retain, may, from their partiality, endanger life; and their gradual and more equal failure degrades the physical and often the mental frame of man to a lower scale of existence, until he sinks into second childhood, dotage, and imbecility.

SEX.

The liability which sex gives to the diseases of the respective generative organs, is too much of a truism to need mention.

But the peculiarities of sex are not confined to these organs; they extend to many of the structures and functions of the body.

The male sex is remarkable for the higher development of the muscular and voluntary excito-motory system, with a corresponding strength of frame—for the stronger impulses of the animal passions, and for a greater endowment of the reasoning faculty. These respectively bring with them a liability to suffer from diseases of the muscles, limbs, joints, heart and great vessels—from evils contingent on undue indulgence of passion or appetite; and from disorders of the brain and its intellectual functions.

In the female sex, the predominant bodily functions are the nutritive, the sensitive, and the involuntary excito-motory; whilst the perceptive and instinctive faculties and moral emotions preponderate in the mind. Hence the greater proneness of females to changes in flesh and blood; to disordered sensation, spasms, convulsive and other affections of the spinal system; and to the direct and indirect consequences of the indulgence, or thwarting of instinctive and moral feelings.

The predisposing influences of the menstrual function have been before noticed; it may now be added, that its cessation favors the development of various diseases of function and structure, especially growths, simple and malignant.

OCCUPATION

Comprises many circumstances already noticed under the heads of predisposing influences. Thus sedentary occupations include want of exercise, and sometimes impure air; laborious employments operates as excessive exertion; other occupations may predispose to disease by the continued exposure to heat or cold which they occasion.

Some employments require constrained postures, which, if insufficient to induce, may yet promote the occurrence of disease; thus engravers and watch-makers are liable to affections of the head from holding the head low; shoemakers and tailors are subject to disorders of the stomach from their stooping forward at their work.

In many other instances occupations induce disease rather by exposing the individuals to the exciting causes, than by inducing a predisposition; but as before remarked, the very circumstances which, in great intensity, suffice to excite disease, in a lower degree may only induce a disposition to derangement. Thus the slow introduction of lead into the system occurring in the occupations of painting, plumbing, and enameling, card printing, *may* not cause colic until cold or irregularity of diet becomes an additional or exciting cause. The same remark will apply to dry grinding, needle pointing, leather dressing and other unhealthy occupations.

An important element in the influence which employments have in causing disease is the time during which they are pursued. Thus an occupation, not in itself unhealthy, may become so when continued too many hours in the day,

and a work which is attended with risk may be often safely undertaken for short periods, with a due amount of relaxation or diversion to another pursuit.

By attention to this point the injurious influences of occupations may be much lessened.

EXCITING CAUSES OF DISEASE.

We now pass to the consideration of the *exciting* or *occasional causes* of disease, or those circumstances and agents, which, operating on the body, especially when predisposed, may excite disease in it. It has been stated before that certain powerful agents, such as irritants or poisons, pretty surely cause disease, independently of constitution or predisposition, but, may much modify the character of this disease in different cases; and where the agents are less powerful, as in the case of common causes of disease, the effects will depend still more on the predisposition, and may be null where this is not strong.

Exciting causes may be divided into *cognizable* and *non-cognizable* agents. The former class comprehend physical and mental agents of whose existence we can take cognizance, independently of their operation in producing disease. Thus cold we know by its effect on our instruments and sensations; muscular exertion by our witnessing or performing it, and mental emotion by our consciousness of it. The *non-cognizable* causes, on the other hand, elude our senses, and we infer their existence only from their morbid effects; thus malaria and infection we know by no other property than that in question.

The following table includes both classes:

Cognizable Agents.

1. Mechanical.
2. Chemical.
3. Ingesta.
4. Bodily exertion.
5. Mental emotion.
6. Excessive evacuation.
7. Suppressed or defective evacuation.
8. Defective cleanliness, ventilation and drainage.
9. Temperature and changes.

Non-cognizable Agents.

1. Endemic.
2. Epidemic.
3. Infectious.

COGNIZABLE AGENTS:

Mechanical causes which injure structure, or impede or derange function.

Besides the obvious instances of tearing, cutting, pinching, striking and straining, which produce at once diseases which fall under the province of the surgeon, the physician finds many mechanical causes of disease which he has to treat. Long continued pressure of articles of clothing may produce disease. Tight neckcloths may cause headache, or even apoplexy, by impeding the flow of blood from the head. Tight stays may cause fainting by pressure on the

Heart and great vessels, or colic and costiveness by obstructing the free passage through the great intestines. Pressure on the epigastrium by sitting at a desk after a meal may cause indigestion.

Long continuance in one position, whether standing, sitting or lying will partially obstruct circulation and innervation, and produce swelling and paralysis of the lower parts, or of those beyond the seat of pressure, and in time may cause inflammation and death of the parts pressed upon. Mechanical causes also operate within the body.

A stone in the bladder irritates by its mechanical properties, especially if it be of an irregular shape, or it mechanically stops the flow of the urine, so also may a gall stone that of the bile.

The intestinal canal is sometimes mechanically stopped by hardened feces, and irritation and inflammation may ensue. The stomach is often irritated by the mechanical qualities, bulk, hardness or asperities of its contents; thence may ensue vomiting, indigestion or inflammation of the organ. The air passages of needle pointers, stone masons, etc., are irritated and inflamed, and at length altered in structure in consequence of the mechanical action of particles of stone or other substances, which these men are continually inhaling in the course of their employment.

Such instances are endless, and the further effects of disease are also in great measure mechanical. For example, the influence of tumors, of diseases of the heart and vessels, the lungs and air passages, intestines and urinary apparatus, injuries and diseases of the bones and ligaments, etc., is in great part mechanical, interfering with the natural mechanism.

Besides their simple mechanical structures and functions, some mechanical injuries, when extensive, directly depress the vital powers; thus concussion of the brain, crushing or tearing off a limb, or a blow on the epigastrium causes fainting and extreme weakness of the heart's action, and may thus cause death. Slighter mechanical injuries are causes of irritation or excitement, which may be local or general according to the excitability and extent of the part irritated.

Chemical causes of disease are even more varied than mechanical, because chemical agents are more numerous. We are acquainted less with the chemistry than with the mechanism of the animal body, and therefore can less distinguish causes which act by chemical properties from those which have complex relations to vital properties.

But we recognize chemical irritants in acids, alkalies and many salts, whether applied to a part or inhaled in a gas or vapor. So what are called chemical poisons, such as corrosive sublimate and other metallic salts, the strong acids and alkalies, iodine, chlorine, etc., produce disease by their known powerful chemical affinities, which tend to decompose tissues and disorder functions. We cannot doubt that many of the matters which cause disease in the alimentary canal do so by virtue of their chemical qualities. The process of digestion, although always in part chemical, is so under the superintendent influence of a superior vital power, no sooner does this power fail, or the chemical agencies or decompositions become too strong for it, than we have fermentation and putrefaction,

which cause eructation of gas or sour liquid from the mouth, and there may follow the discharge of ill-colored and unusually fetid matter by stool; then, too, may arise a number of disorders which may in great part be referred to the influence of these injurious chemical processes.

There appear to be at least four modes in which chemical agents may excite disease in the body.

1st. As *local irritants*, as the diluted acids, alkalies and various salts, chemical operation of which is resisted by increased action excited in the part. The carious maxillar of the workmen exposed to the vapors of phosphorus, would appear to be due to this cause.

2d. As *corrosives*, as in the case of strong acids, alkalies, some metallic salts, chlorine and iodine which by their powerful chemical affinity, so completely overcome the vital affinities of textures as to decompose them, and thus to kill and alter the condition of the part.

3d. As *septics*, promoting the spontaneous decomposition of the fluids or solids of the body in the same way that ferments or putrescent matters operate on dead organic matter.

4. As *chemical alteratives*, modifying the changes which take place in digestion, assimilation, transformation of textures, secretion, etc., as in counteracting acidity by alkalies, in variously influencing the state of the blood and urine by acids, alkalies, etc., and causing the production of hippuric acid in that excretion by the administration of benzoic acid.

The operation of chemical agents on the whole body will vary according to their intensity and extent.

Irritants, if extensively applied, cause feverish excitement. Corrosives, if acting widely, depress the vital power, like the shock of violent mechanical injuries; if partially the vital powers are excited to resist them, and they operate as irritants.

Septics, if very powerful, may speedily overwhelm the preserving vital powers of the body, which then speedily passes into a state of corruption, as in the case of extensive gangrene, pestilential diseases, etc.; but if the septic matter be scanty, and the vital powers strong, they are excited to increased action, and by means of accelerated circulation and augmented excretions, the body may get rid of the offensive matter. Such struggles are instanced in typhoid fevers, epidemic cholera, dysentery, etc.

The solid and liquid ingesta are a fertile source of disease, and in various ways. Their mechanical and chemical properties have already been noticed. But, further, the ingesta may cause disease:

1st. By non-alimentary matters acting injuriously.

2d. By aliment defective, or ill-proportioned in quality.

3rd. By aliment defective, or excessive in quantity.

Of the *non-alimentary matters* contained in the ingesta, salt, spices, pickles, and other condiments, and spirituous or fermented liquors, are frequent exciting causes of disease.

They are all more or less irritating or stimulating to the digestive apparatus, and if used indiscreetly, may induce inflammations, congestions and functional

disorders of these organs, and, in some instances, irritation of other parts and of the whole system. Salt in excess irritates the stomach, retards digestion, and causes feverishness with thirst.

Many of these effects are due to the affinity of the salt for the water of the animal fluids, and may be induced by other saline matters besides common salt. Wherever excess of salt is contained in the body there will be exosmosis and endosmosis of the water from the adjoining vessels and tissues, until the salt is equally distributed among them, and before this is accomplished, there will be such a diminution of the fluids within the blood corpuscles, and on the surface of the membranes, as may readily account for the thirst and disturbance caused in the system. According to Liebig, salt impedes the deposition of fat. Animals will not fatten on salt food—a hint for the corpulent. But the operation of intoxicating liquors is more extended; being soon absorbed, their stimulant action is speedily exercised on different parts, especially on the vascular and nervous system. Being absorbed by the veins, they pass by the portal vein into the liver, the function and structure of which are particularly apt to suffer from excesses, especially when spirits have been freely indulged in. So, too, the kidneys, which are the natural emunctories through which such extraneous matters are eliminated from the system, are often over-stimulated, and are injured in their secreting power, and ultimately in their structure also. The heart and vessels are over-excited at first, and afterward lose their tone; and the processes of digestion and nutrition become impaired and modified. The nervous system is an especial subject of the disordering influence of intoxicating liquors. A large quantity taken at a time is a narcotic poison, inducing a short period of cerebral excitement, or intoxication, followed by insensibility, in which the functions of the brain are more or less completely impaired, and in extreme cases those of the spinal marrow suffer; and if the influence be insufficient to stop respiration, yet it may be imperfectly performed, and congestions are formed in the brain and other organs. Hence, apoplexy, palsy, phrenitis, or delirium tremens, may follow, and the whole frame may suffer from the effects of the poison. Even when less excessive quantities are taken and their first effect is mere intoxication, the headache, sickness, and loss of appetite, and the feelings of wretchedness and depression which often ensue, sufficiently prove that disorder has been produced, and that such artificial excitements cannot be abused with impunity.

The habitual indulgence in strong drinks causes further varieties of disease which are so prevalent as to deserve notice. When taken only or chiefly with food, not as a substitute for it, but as a constituent of general “free living” they contribute to the production of an abundance of ill-assimilated, over-heated blood; which either finds its vent in eruptions on the surface, or in local hemorrhages or fluxes, or causes various functional disorders, such as palpitation, vertigo, stupor, dyspepsia, bilious attacks, etc., or may tend to the production of a fit of gout or gravel. The latter results are promoted by such beverages as contain much free acid as well as an abundance of spirit, such as port wine, rum punch, and hard, strong beer. The less acid malt liquors, ale and porter, tend rather to induce liver disorders, and an abundant deposition of fat in the body.

All these consequences will be much favored by sedentary habits and deficient excretions; active exercise carries off much of the spirit and superfluous aliment by an increased elimination of the acids of respiration and perspiration.

The most disastrous consequences of intemperance are exhibited by the habitual drunkard, who, in proportion as he indulges in liquor, loses his appetite for food, and his power for digesting it. He then drinks and starves, and the disease which ensues comprises the exhaustion of inanition with the more direct effects of the alcoholic poison. Thus in delirium tremens, the drunkard's disease, together with the permanent restless excitement of the irritated nervous system, which adds more and more to the exhaustion, the weakness of the mind and body is fearful, and in bad cases effect even the organic functions, so that the pulse is very weak and frequent, the excretions scanty and depraved, and the respiration is too imperfectly performed by the involuntary powers to permit sleep to ensue. This exhaustion must soon terminate in death, unless prevented by appropriate treatment, and this must comprise besides lactuca, (the American remedy) capsicum and other stimulants to the circulation and respiration; purgatives and diuretics to free the blood from the excrementitious matter that has accumulated in it, and fluid nourishment to repair its waste.

Without these adjuncts opium itself will not only fail to procure sleep, but its narcotic influence may extinguish the flame of life.

The use of liquors, malt or spirituous, are uncalled for and their supposed advantages are more than counterbalanced by the evil effects on health that follow their long continued use, aside from the moral effect upon the individual.

Disease may be excited by unwholesome articles with which the food is adulterated. To this class of causes belong various poisons; the operations of some of these will be noticed under the head of "Modes of Death," (see chapter on Prognosis); but for further details, works on toxicology and materia medica must be consulted. There are some noxious matters occasionally mixed with food, which gradually produce deleterious effects.

Thus salted provisions too long used will cause scurvy; ergotted corn has been known to produce dry gangrene. Lead, gradually introduced, causes constipation, colic, paralysis, and atrophy.

Impure water, used as a drink, is a common cause of disease, containing decaying vegetable or animal matter, it may induce sickness, diarrhœa, cholera and typhoid symptoms; hard waters, which are impregnated with some of the salts of lime, render the bowels costive, and are supposed to favor the production of calculous diseases and bronchocele; brackish waters, containing saline matter, may induce dyspepsia and diarrhœa; chalybeates, containing iron, are constipating, etc. Under the head of non-alimentary ingesta, which may cause disease, we must reckon various so-called medicines; and that not only when injudiciously administered, but as commonly prescribed, the remedies considered *necessary* to cure or relieve many diseases are not uncommonly *unnecessary evils*; they remove one disorder by inducing another, and it is well if the evil thus induced is the least of the two.

Aliment unfit in *quality* is another condition of the ingesta that may cause

disease. Man is, by nature and habit, an omnivorous animal, and in general his health is best maintained by mixed proportions and varieties of animal and vegetable food. The insalubrity of the simpler constituents of food, when separate, even those supposed to be most nutritive, has been well shown by the numerous experiments of Majendie, Gruelin and others. They fed dogs, geese, donkeys and other animals on articles which are generally considered highly nutritive, as sugar, gum, starch, oil or butter, the animals died with symptoms of starvation almost as soon as if they had been kept without food. Even bread, when too fine, is insufficient for nutriment. A dog fed on pure, white bread lived only fifty days, whereas another fed with the coarsest brown bread was well nourished, and seemed capable of living to an indefinite period. According to the research of a commission of the French Institute, (the report of which was published in 1841) animals fed on pure fibrin, or albumen, or gelatine, die of starvation with reduced quantity and quality of the blood, almost as soon as if not fed at all.

Gluten or vegetable albumen is the only simple principle which will alone maintain life, and the nutritious qualities of vegetable food depend chiefly on the quantity of this azotized principle which they contain.

Bread may well therefore be called the staff of life. Even animal albumen and fibrin require mixture with vegetable matter to make them properly nutritious as well as wholesome, and gelatine and oily matters are still less available for nourishment without such combination. In the experiments just alluded to, animals could be supported on meat or flesh, which composes several of the elementary matters, although they were not sustained by any one of these matters separately. The utility of a due combination of organic elements for the food of animals has long since been ably shown by Dr. Prout, who pointed to Nature's aliment, milk, as the great type of all proper kinds of nourishment, as it contains albumen, oil, sugar and water, so all other kinds of food used for ordinary sustenance, ought to include these elements, or others identical, that is, identical in ultimate composition with them, and it is quite true that all combinations of food sanctioned by custom do comprise such ingredients. Bread contains two of these, gluten which is vegetable albumen, and starch which is identical with sugar, but bread is not relished without butter or some fat with it. Neither does meat, which contains albumen and fat suit the taste without a combination with bread, rice, potatoes or some vegetable which represents the amylaceous or saccharine principle.

Much discussion has occurred of late as to the share or purpose which each of the elements of food serves in the animal economy, and to the extent to which they can be changed by the process of digestion and assimilation. Dumas and the French chemists generally have maintained that this process is limited to the separation and appropriation of principles ready formed in the food and does not extend to the conversion of one into another.

Thus all the albumen or fibrin in the body is derived from the albumen or gluten of the food, and all the fat from fat or oil, contained in the nourishment. This view, as regards the formation of fat, is opposed by many familiar facts, such as the fattening of domestic animals with farinaceous and vegetable foods,

which contain very little fat, and it has been completely negated by the experiments of Petroz and Boussingault, which have proved that geese and pigs during the process of fattening, gain more fat than is contained in their food. It further appears probable that the conversion of sugar into fat is promoted by the agency of bile, for H. Meckel found that by keeping a mixture of bile and grape sugar at a warm temperature, the quantity of fat in the mixture increased to double in five hours and more than treble in twenty-four hours. It is pretty certain, therefore, that fat may be formed from starch or the saccharine principle and probably from the albuminous also.

But there is no decisive evidence to show that albumen or gelatine can be elaborated from fat, starch or sugar, at least under common circumstances, and it is certain that these elements alone will not long sustain animal strength or life.

Baron Liebig has advanced a very comprehensive hypothesis with regard to the purposes of the different proximate elements of food. He considers that the albuminous principle alone supplies the material from which the textures and all the non-nitrogenous elements are converted into carbonic acid and water by the process of respiration for the production of animal heat. Although too exclusive to be fully admissible, the general outline of this view appears to be consistent with facts, and will assist us in studying variations in food as a cause of disease. The chief alimentary matters may be divided into the *albuminous*, the *gelatinous*, the *oleaginous*, and the *saccharine* or *amylaceous*, and we shall briefly consider how an excess or defect, and in some instances the quality of each of these, may operate in causing disease.

Albuminous or *proteinaceous* articles, such as the lean of meat, fowl and fish, gluten of bread and casein of milk, are those which supply the albumen and fibrin of the blood and textures of the body. Hence *defect* of this kind of nourishment will cause, first, weakness of the heart and other muscles, and at length wasting of these and of other textures, with diminution of the quantity and richness of the blood. *Excess* of carneous food, particularly the richer kind—*butcher's meat*—tends to cause plethora, with an excited circulation and feverishness, which may result in hemorrhage, inflammation, gout, lithiasis, etc. *Bad quality* of albuminous food is peculiarly injurious to persons of weak digestive and assimilative powers. Thus the casein of cheese, the fibrin of stale or salted meats, and the gluten of sour or ill baked bread, or heavy pastry, instead of forming good protein, is apt to degenerate into the products of animal decay, lithic and lactic acids, urea, etc. Hence may arise gout, rheumatism, calculous disorders, etc. In this statement I disregard the dogma of Liebig, that the materials of food serve for respiration and nutrition only and that urea, lithic acid and excrementitious matters are derived from the decay of the tissues alone.

Daily observation convinces the medical practitioner that in persons of weak assimilation certain articles of food, as specified above, so certainly and promptly cause an increase of animal matter in the urine, that there can be no doubt that they are the direct sources of it. *Gelatinous* food, soups, broth, isinglass, jellies, etc., are by no means so supporting as albuminous matters, but when combined with bread they nourish the body so well that it seems very

probable that, in a healthy constitution, gelatine may assist in the formation of albumen; but when used in excess, or to the exclusion of bread and meat, it ceases to be nutritious, and the strength and flesh will waste.

Oleaginous or *fat* nutriment, butter, fat of meat, oils, and seeds containing them, not only supplies the material for the adipose textures of the body, but it assists in the formation of other structures and secretions, (oil globules forming a normal constituent of them,) and it affords the strongest fuel for the maintenance of animal heat by respiration. From what has been before stated, it may be inferred that fat may also be formed from saccharine and starchy food, as well as from the store-houses of the adipose membrane; but *defect of fat* in the food has been observed to induce the following morbid results: loss of flesh, especially of the rounded plumpness and smoothness of surface, which becomes skinny, wrinkled, and often dry and scurfy; deficient secretions of mucus at the orifices of mucous passages, and of synovia in the sheaths and joints; insufficient formation of bile, and consequent imperfect digestion and feculent excretion, with diminution of animal heat.

Excess of fat food may disorder the stomach by its indigestibility, becoming rancid and causing heart-burn or sickness, and sometimes a bilious taste; for much fat seems to induce a regurgitation of bile into the stomach, which is supposed to assist in its digestion (Beaumont) and absorption (Mattencchi). The pancreatic juice is essential to the digestion, or appropriation and assimilation of fat or oily substances, and with this secretion deficient, the fat or oily matter will be ejected from the stomach, or pass through the bowels without being digested or taken up. If the fat is carried into the blood, it may cause inconvenient obesity by its accumulation in the adipose texture of various parts of the body; or, if the subject be naturally lean, and incapable of accumulating fat, the superfluity must be carried off and the natural emunctories, the sebaceous follicles of the skin and the liver, may be disordered; hence, acne and other follicular diseases of the skin, and various bilious disorders, will ensue. These results will be more readily produced in sedentary persons, in whom the exercise of the lungs is insufficient to consume the superfluous fat. On the contrary, those who use active exercise can often take considerable quantities of fat with impunity, and sometimes with advantage. For similar reasons, oily food is better borne in cold than in hot climates and seasons; thus, as Liebig has pointed out, the Laplander relishes train oil, which serves to sustain the warmth of his body, whilst the Italian, in a sunny climate, prefers the less combustible food, maccaroni and fruit, which nourish without heating.

The quality of oily matter in the food is materially concerned in its morbid effects, those most prone to chemical change or to become solid, being more likely to disagree than others. Thus stale or tainted butter or fats, and rancid oils, are peculiarly offensive to the digestive organs, both from the production of injurious acids (butyric and oleic,) and from their compact globules rendering them incapable of the minute division necessary for their absorption and appropriation to the nutritive process. On the other hand, fresh butter, mild fat and sweet salad oil, agree well and nourish, especially when intimately blended with farinaceous articles, although consisting of the same elements with *saccharine*

matter, are not quite similar in their physiological effects. Like it, they probably sustain the body rather by supplying a material for the process of respiration, than by nourishing the textures; they thus save them from the consuming influence of the oxygen absorbed through the lungs; and if taken in *excess* they may either lead to the formation of fat, which is deposited in the textures, or passing into fermentation, they may give origin to ascetic, lactic and oxalic acids and other matters of an injurious tendency, and this latter effect occurs more from saccharine than from amylaceous food. On the alimentary canal, too, their effects in some degree differ, amylaceous food in excess impairing the action of the intestines, and the secretion of the liver, whereas sweet things often relax the bowels and cause a redundancy of bile.

These different effects of saccharine matter are probably connected with its either often containing or readily forming vegetable acids which irritate the alimentary canal and which may become causes of dyspepsia, diarrhœa, diabetes, rheumatism, oxaluria, and other disorders of the same class. Amylaceous and other saccharine matters, forming the mildest materials of food, serve to dilute the stronger articles, fibrin and oil, and to render them both more palatable and more digestible, when, therefore, the former are *deficient*, the latter are more apt to disagree and fail to impart their nutrient properties. These and other vegetable principles, such as gum, vegetable jelly, extractive, etc., also contain alkali combined with vegetable acids which are decomposable in persons of strong digestion, and this alkali becomes useful in counteracting the acidity which results from the processes of transformation continually proceeding in the body.

Thus fruits and other vegetables assist in neutralizing and eliminating lithic acid, and in preventing the occurrence of gout and gravel.

This statement is in accordance with the views of Prout, Liebig and Wohler; but I have restricted its application to the case of persons whose digestion is strong, for in those of feebler powers, I find commonly that vegetable acids and fruit increase the acidity of the urine, and are therefore injurious; whether by passing unaltered through the circulation, or by irritating the *primæ viæ*, and thus leading to an unusual development of hydrochloric and other unchangeable acids, I cannot say, but the latter would appear most probable.

Thus the selection and combination of articles proper for food would be a difficult task, requiring much scientific knowledge, and calculation, were it not that Nature has supplied us with an instructive guide, which happily adapts itself to the varied wants of the system in change of season and other circumstances. The appetite and taste generally instruct us pretty safely as to the best proportions of different kinds of food; but they must not be perverted and pampered by condiments and refined modes of cooking. These are expedients to coax and deceive the appetite and taste, and if these guardians of the nutritive department are cheated, it is no wonder that the department becomes deranged.

Aliment may be *excessive* or *deficient* in quantity. Sometimes the appetite is inordinate, more frequently it is pampered; in either case, if gratified, *more food* is taken than the expenditure of the system requires. If the digestive or-

gans fail in appropriating the nourishment, they become distended, irritated, and otherwise disordered by what they cannot digest. If they are strong, and digest the excess, they send too much chyle into the blood, over-distend the vessels, and derange the function of assimilation; hence, may result plethora, apoplexy, gout, gravel or some congestive hemorrhage, or inflammatory disorder, to which the individual is predisposed. Such evil consequences of repletion will ensue the more readily in sedentary persons in whom the waste of the body is little, and the excretions scanty. *Defective* nourishment may excite various disorders. In the extreme case of privation of food, the cravings of hunger are alternated with nausea and a sense of sinking; then follow extreme depression alternated with transient fever, delirium, and general disorder both of body and mind, with increasing feebleness and inability to maintain animal heat. It is a curious fact that, in this state, the stomach becomes inflamed, probably from the irritating action of its secretion on its unrelieved vessels. Even in less degrees of abstinence enjoined in the treatment of disease, symptoms of vascular and nervous irritation often arise in the midst of general weakness. By many practitioners of the Broussaian school these symptoms are erroneously taken as indications of an increase of the antiphlogistic plan, when a judicious return to nourishing food will really prove the best cure.

Deficiency of food, if long continued, causes general weakness of the functions, and wasting of all the textures except those of the nervous system. The blood becomes thin and easily extravasated, the gums spongy and bleeding; fat disappears; muscles become thin and flabby; the legs œdematous; diarrhœa often occurs, ulcers often appear in the cornea and other parts which are less vascular; a state of scurvy or cachexy is induced, from which, if advanced, an improved diet may fail to restore.

Chossat found that, in animals gradually starved to death, the temperature progressively declined, and unless maintained artificially, the animals seemed to die of cold. All the textures, even that of the bones sustained great loss of weight, but those of the nervous centres far less than any other.

This fact I would explain by the peculiar condition of the blood-vessels supplying these centres, which enables them to monopolize the little blood remaining; and thus we gain a further interpretation of the predominance of nervous symptoms in persons suffering from inanition. In less extreme cases, poor living may excite scrofulous and tuberculous disease, and other kindred forms of degeneration of organs. The bad influence of poor living is much more felt in those who are confined in close habitations, as in prisons, poor-houses, the cabins of ships, and besieged towns, than in those who are at large; and it is under such circumstances that the insalubrity of some kinds of food, however nutritious, becomes apparent. Thus, even bread with meat or broth will not preclude the occurrence of scurvy; but a sufficient addition of fresh vegetables, and even of potatoes, prevents this disease from appearing. The prolonged use of a scanty regimen is a frequent cause of obstinate constipation and various digestive troubles in those who fast through Lent.

Excessive bodily exertion of various kinds is a common exciting cause of disease. General muscular efforts, as in running, walking up hill, rowing, etc.,

hurry the movements of the blood back to the heart, and resist its distribution through the arteries in such a degree that the heart, lungs, brain, and other organs, have an unusual pressure of blood upon them. The heart, excited to inordinate action, is often strained and distended, and its function, or even its structure, and that of the great vessels, may be impaired in consequence. This is especially apt to happen if there be already anything imperfect in the structure of the organ, its valves or vessels; and there are naturally very various degrees of perfection and strength in these parts. The brain is particularly liable to suffer from violent exertion, especially if joined with a stooping or constrained posture; for its vessels are not, like those of the limbs and trunk, supported by muscular pressure upon them, and the excited heart can therefore send its blood into them with more force. Hence giddiness, noise in the ears, deafness, defective vision, convulsions, palsy, and apoplexy have been brought on by violent exertion. The lungs are also apt to suffer; for the blood being returned to them faster than they can arterialize it, they become greatly congested, hence cough, dyspnœa, hæmoptysis or inflammation of the lungs, may ensue; and the texture of the lungs may also sustain injury in consequence of the violent strain to which it is subjected by the increased exertions for breath. Other internal organs are sometimes disordered by the blood thrown or retained in their vessels by the pressure of external muscular action. Derangement of the liver, hæmatimesis, hæmorrhoids, and hæmaturia, have been brought on by such a cause. The sharp pains or stitches felt in the sides or abdomen, on running fast, are commonly supposed to be in the liver or spleen; but more probably they are spasms of the intestines—temporary colic, produced by pressure on them, when their sensibility is raised by the blood unduly thrown into them.

Some kinds of muscular exertion peculiarly affect certain organs. Thus loud reading or speaking, or blowing wind instruments, especially tries the organs of respiration, and the voice, and may cause hæmorrhage, inflammation, and various diseases of these organs. Excessive or rough riding or leaping may injuriously affect the kidneys and organs of generation. Straining to lift a heavy weight, or at stool, or in any continued effort which implies holding the breath, endangers the structure of the vessels of the chest and brain, on which there is no equally counteracting muscular pressure. Bodily exertion, long continued, may also cause disease by its exhausting effects. In extreme degrees this exhaustion may amount to syncope, and even death; short of this it may cause great weakness of muscles and of the heart, with corresponding depression of other functions, with congestion of the viscera, defective assimilation and excretion; hence arises low typhoid or adynamic fever, which sometimes follows prolonged fatigue. In slighter cases we have giddiness, faintness, nausea, loss of appetite, indigestion, costiveness, amenorrhœa, and other varieties of injured function. When exercise is carried on so long, or to such a degree as to impair the organic functions, it thereby induces disorders in them in addition to the weakness, prostration, and actual suffering in the animal functions. A serious part of such disturbance is the sleeplessness which ensues from extreme fatigue, and which may bring the patient into a state resembling that of delirium tremens. This, as we have already mentioned under the head of predisposing causes, is

mainly due to the state of the respiration, which, being insufficiently maintained by the weakened spinal function, is aided by continued voluntary efforts, which are manifest in the frequent sighing that takes place. In this case, the best hypnotic will be found in a diffusible stimulant.

The opposite extreme, *want of exercise*, is capable of exciting as well as of predisposing to disease. Thus, internal congestions, deficient and disordered secretions, general plethora, over nourishment of adipose texture, and wasting of muscles, and various consequences of these morbid conditions, may result from this cause when long in operation. When combined with some of the other disturbing influences noticed in this section, it is a still more ready and common cause of mischief. Some organs more particularly suffer from a sedentary mode of life; for example, the liver, from the increased task of decarbonization of the blood which deficient respiratory exercise throws on it; the brain, from its vicinity to the centre of the circulation, exposing it to an accumulation of blood when the distant circulation fails; hence bilious disorders, dyspepsia, hæmorrhoids, headache, giddiness, etc.

Strong mental emotion or acute sensation, is a common cause of disease. Closely knit together as the mind and body are, it is not surprising that they should ever be ready to affect each other, and that when the impression is strong, the affection should not be slight or transient. The heart most remarkably suffers from such causes. Thus a sudden shock, whether of grief, surprise, fear, or even joy, may cause fainting, partial suspension of the action of the heart; nay, even death has ensued, and the expressions "frightened to death," and "killed with joy," are not always mere figures of speech. Sudden acute pain often causes fainting. Palpitation and irregular action of the heart are very common effects of emotion.

Other parts also suffer from strong moral impressions. Spasmodic asthma and spasmodic affections of the throat are sometimes thus induced. Apoplexy, palsy, inflammation of the brain, epilepsy, and insanity, have been caused by excessive anger, terror, surprise and joy. Very commonly mental emotions affect the secreting organs, and especially the functions of the alimentary canal. A piece of very bad news takes away appetite, or impairs digestion. Fright or anxiety often loosens the bowels, or brings on a bilious attack, or jaundice. The uterine periodic function is remarkably subject to the influence of moral emotions, and many of its disorders may often be traced to this source.

The slower emotions of the mind and over-exertion of its faculties are also exciting causes of disease. Long continued depression or anxiety sometimes induces dyspepsia, costiveness, or diarrhœa, asthma and functional disorders of the heart, menorrhagia and dysmenorrhœa, and in time structural diseases of the same parts, occasionally follow these functional affections. Over-exertion of the faculties, or excitement of the passions of the mind, are chiefly felt in its own functions, or in its own organ, the nervous system. Hence may arise congestions of the brain and exhaustion of nervous power, with giddiness, stupor, headache, dull and disordered sensation, and even apoplexy and palsy. Or the disease may be inflammatory, with symptoms of irregular excitement, nervousness, delirium, tremor, convulsion, partial paralysis, etc. Sometimes

the effects of excessive mental exertion or moral emotion are apparent only in the phenomena of the mind, the powers of which are injured or disordered, and various forms of insanity are produced.

When we consider the variety and amount of food and condiment, employment and excitement, that pass into the minds of persons in the busy and worrying scenes of civilized life, it is not extraordinary that the mind, as well as the digestion, or other function, should occasionally be disordered by such causes.

Excessive evacuation or loss, either of blood or of some secretion was formerly noticed as a cause of debility which predisposes to other diseases, but if the loss be great or sudden it may produce immediate disease. A certain fullness of the heart and blood-vessels is required for their healthy functions, as well as for those of all the organs which they supply. If a moderate quantity of blood be suddenly withdrawn, or a large quantity less suddenly, the heart's action will be impaired, rendered irregular, and may be interrupted, and the brain not receiving a current sufficient to maintain its functions, there may be fainting, with loss of consciousness, accompanied or followed by disordered function, palpitation, delirium, convulsion, or by death.

This being true, how fatal must have been the result of the old school plan of treatment, when blood was drawn almost to depletion in the severest form of disease as well as the more trivial, from the already debilitated as readily as the strong and plethoric! The sudden impression in these cases is evidenced more on the brain than on the heart; for these effects may be induced by the loss of a much smaller quantity of blood in an erect or sitting posture than in a horizontal posture.

Similar results have been found to ensue from the sudden removal of pressure from the vessels in any considerable part of the body, as by the discharge of the fluid of ascites, or by enclosing a limb in an exhausting tube. Lower mentions a case of extensive enlargement of the veins of the lower extremities in which the patient could not stand without fainting, until the legs were bandaged. In these cases, much of the blood, although not removed from the system, gravitates into vessels, where it becomes unavailable for the general circulation. The fainting which occurs in these cases is called *cerebral syncope* because the functions of the brain are suspended, consciousness is lost before the heart's action is interrupted; but the disorder of the brain reacts on the heart, and adds another influence to impair its action also. This is Dr. Alison's explanation.

On the other hand, if the hemorrhage is gradual and the posture horizontal, other functions fail before the consciousness is lost—the chief symptoms being “feebleness of muscular action, paleness and collapse of the countenance, coldness, beginning at the extremities, cold sweat, beginning on the face, the pulse imperceptible,” and the heart's action becoming so. The true nature of these effects, and the reaction and nervous symptoms with which they are often followed, will be considered hereafter in connection with the subject of anæmia. Not only blood letting but other evacuations, purging, sweating and vomiting, the catamenial and seminal. A man who, during his whole life, has exposed himself with impunity to the inclemencies of weather is attacked with rheuma-

tism when exposed after excessive venereal indulgence. Under similar circumstances the same disposition to attacks of yellow fever has been noticed in all epidemics of that disease. The depression and faintness induced by these, although less prompt, are often more permanent than those from blood letting; for such evacuations imply not only reduction in the mass of blood, but also an exhaustion of the vital energies in the secretions and functions concerned in producing them. The diseases gradually induced by these several causes of evacuation are seldom of a simple kind. General weakness of the muscles and functions is commonly a result; but this is often complicated by symptoms of a partial reaction, palpitation, spasms, noises in the head, images in the sight, pains in different parts, sometimes very acute, but seldom long fixed, partial paralysis and a defective and disordered state of the secretions.

Deficient evacuations of excrementitious matter, whether natural or accidental, is a very fertile source of disease. The operation of this class is somewhat diversified, some causing disease by the positively noxious influence of the matter retained in the system, which is the case of the urine and feces; others, by causing fullness of the vessels, and the various disorders which this may induce. To the latter class belong sudden suppression of hemorrhages, or other discharges which have become habitual.

The matter of alvine and renal excretions is essentially pernicious, and cannot be long retained even in their natural repositories, without causing mischief. Feculent matter, when it has reached the large intestine, is still acted on by the absorbents, which take up its more fluid parts, and with them, if long retained, fetid matter, which ought to be excreted. The solid residue becomes hard and scybalous; and may remain lodged in the cells of the colon, a cause of irritation, distention and obstruction. Sometimes the system suffers before the intestine itself; at length, however, or sometimes at first, this part becomes irritated; colic, diarrhoea and inflammation may ensue—nay, in some instances, where efficient remedies are neglected, even ulceration and other structural changes take place before offending matter is dislodged.

The retention of urine has even more serious effects. Besides mechanical distention, irritation and rupture, which may follow from the constantly accumulating secretion, the fluid is partially reabsorbed, giving a urinous smell to the breath and perspiration, and sometimes causing typhoid symptoms, which in extreme cases prove fatal, with delirium, or convulsions and coma; and effusions of serum, containing urea, are found in the brain, chest, and other parts. These are effects more commonly of suppression than of mere retention; but, in fact, suppression follows retention: the retained urine is prone to decomposition; highly irritating and offensive matters are produced, which cause injury to the bladder, rapidly extending up the ureters to the kidneys, whose function then becomes impaired or suppressed.

In several cases of the early stage of the severest form of Bright's disease, in which the urine was very scantily secreted and highly albuminous, I have seen typhoid symptoms of the worst character ensue, accompanied by a breaking up and partial solution of the coloring matter of the blood, with the appear-

ance of pus globules in it; in two instances there was effusion of a bloody purulent effusion in the joints a day or two before death. These results will be further noticed under the head of defective excretion and purification of the blood as an element of disease.

Checked perspiration is a well recognized cause of disease, commonly of a febrile or inflammatory nature; but the sudden suppression of a foetid sweat in the feet, axillæ, etc., has sometimes been followed by such serious disturbance of health as plainly indicates that the matter thus excreted is of a noxious quality.

The preceding are extreme results; but the attentive observer will find that smaller degrees of the same causes, insufficient secretion, or insufficient evacuation of excrementitious matters, are among the commonest sources of disorder, and it is by a proper restoration of these functions that the almost universal domestic remedies, as well as the common pills and draughts of the surgery, prove so useful in preventing as well as in removing disease. We shall have many occasions to illustrate these facts. Numberless maladies arise from suppression, or irregularity of the catamenial discharge, which appears to be a highly carbonized blood, and therefore its excretions give relief.

Diseases are not unfrequently excited or rendered active at the period of its total cessation. The same may be said of the secretion of milk. The disorders which these first produce are commonly connected with local or general plethora, but eventually the quality of the blood in the body becomes altered as these excrementitious matters are suppressed. In artificial or diseased discharge or secretion, as that of a seton or issue, or from an ulcer or diseased membrane, or an unnaturally profuse flow of an ordinary secretion—such as looseness of the bowels, if so long established as to have become habitual—cannot be suddenly suppressed without great risk of exciting disease. In the case of habitual puriform or sanious discharges from setons, issues, and old sores, their sudden suppression has sometimes given rise to the most formidable symptoms, showing that a noxious matter had been thrown back upon the system; and the fear of such accidental suppression which cannot always be prevented, deters me from frequently employing these artificial drains in the treatment of disease. The surgical treatment of fistula in ano is often followed by pulmonary consumption, hence my treatment of this class of diseases is always constitutional, and never merely surgical.

Habitual hemorrhages, as from the nose or rectum, and the practice of periodical blood-letting, cannot be abruptly checked with safety. The maladies which result will vary with the predisposition; but, generally, they are of the nature of local or general vascular fullness, or some disorders of secretion, or of the nervous system arising from disturbances in the circulation. As examples may be named—congestion of the brain, apoplexy, congestion of the liver, various hemorrhages and inflammations, gout, epilepsy, palsy, hysteria, hypochondriasis, mania, etc. The suppression, or too rapid removal, of some cutaneous eruptions may be appended to this class.

The diseases which it excites are sometimes inflammatory or profluvial, as gout, rheumatism, diarrhœa, etc.; sometimes more nervous, as chorea, epilepsy,

asthma, dyspepsia, hysteria, and in some cases tubercular consumption result as a sequel of the quick cures of some skin diseases. In removing all chronic ills, the system must first be prepared for the change.

Defective cleanliness, ventilation and drainage. Much of the pernicious influence exercised by these causes might be referred to the last head, for there are few kinds of filth more offensive, few mephitic gases more foul, and few descriptions of offal more abominable than those that are excreted from the animal body itself. And if, as we have seen, such matters are so injurious when not sufficiently eliminated out of the body, it is not surprising that they continue to be noxious, and may become causes of disease after they have been evacuated, if proper means be not taken to remove them. The necessity of self-purification is illustrated by the instinctive habits of many animals and birds, which take much pains to cleanse themselves and their young and, in many instances, carefully remove excrements from their nests and habitations. Even plants are supposed, by some botanists, to exhibit a like provision for preservation against self-poisoning, in the constant spreading of their roots into new soil uncontaminated by their own excreted matter. Yet, with strange disregard of all instinctive feelings, and indolent neglect of the plainest dictates of reason, human beings are found continually exposing themselves to the influence of their own accumulated filth, until disease is engendered and aggravated into pestilence, and the rate of mortality is doubled or tripled in the population.

Although the three particulars, neglect of cleanliness, imperfect ventilation and defective drainage, operate much in the same ways, and are very commonly combined, yet with a view to suggest a remedial means, it will be useful to consider briefly the modes in which each is known to excite disease.

Filth accumulated on the surface, consists of the inspissated matter of perspiration, together with any extraneous dust or dirt to which the individual may be exposed.

The sweat is peculiarly rank and offensive in some persons, especially when accumulated during much muscular exertion, and in some parts as the axillæ and perinæum, and between the toes, is combined with an odorous principle, the disgusting character of which seems to be intended by nature to suggest the necessity of frequent ablutions. Yet how many, and these not confined to the lower ranks, are "content to live in dirt and stink," and often eventually to pay the penalty of their filthiness in various cutaneous diseases which are thereby induced. In young children, in females, and in many aged persons, the urine dispersed in the vicinity of the secreting orifice becomes an additional cause of irritation and offense. The accumulation of filth on the surface further favors the propagation of vermin and of contagious diseases, especially the itch, from which few of the "mighty unwashed" are totally free. It also impedes free perspiration, and thus favors the production of rheumatism and diseases of the urinary organs, and others which sympathize with the skin. Neglect of cleanliness in clothes and dwellings, if not equally injurious by direct contact with the body, becomes hurtful by contaminating the air. Mortality is invariably commensurate with the filth and destitution of the inhabitants, and the impurity of their abodes.

Defective Ventilation, or insufficient change of the air of dwellings, might be considered to readily suggest its proper remedy by the feeling of suffocation induced; but it is not such a deficiency of oxygen, or excess of carbonic acid, as induces a stifling sensation that does most harm, it is rather the scanty supply of fresh air that stints the vital processes without suddenly disturbing them, and the gradual accumulation of foul effluvia that slowly poisons, without exciting alarm. Persons are gradually brought to endure without complaint the impure air of a close room, which to any one entering it from the open atmosphere seems quite suffocating.

Thus, in the habitations of the poor, especially in densely populated towns, it is not rare to find ten or fifteen crowded together in one small room, without any other supply of air than that which comes through chinks of the floor or window, or when the door is accidentally open. Among this class the dread of cold prevails much more than the desire for fresh air, and except in the height of summer, the solitary window may be rarely opened; and during the night when the greatest number are collected together, every opening is kept carefully closed. During the winter the same plan is pursued, but then, if there be any fire in the hearth, it will ensure a greater amount of ventilation.

The habitual want of pure air especially exercises an unfavorable influence on the state of the blood, and the functions of circulation and nutrition, causing pallidity of the surface, poorness of the blood, imperfect development of the fibrous principle, which, instead of contributing to the nourishment of the muscles, degenerates into scrofulous or tuberculous matter, the deposition of which in the internal organs or glands is favored by the weakness of the circulation. Exercise may in some degree counteract this effect of impure air. Thus Dr. Guy found that in the close workshops of a printing establishment, the compositors whose work requires no exertion, fall victims to phthisis, in the proportion of 44 to 31 1-2 per cent of the pressmen, who, while breathing the same air, use active bodily efforts. This difference is quite intelligible when it is remembered that active exercise, by increasing and extending the force of the circulation, tends to remove congestions, to promote excretion, and by the activity of the respiratory function enlivens and purifies the condition of the blood. Similar exercise in pure air would have much more salutary effects, the deaths from the same cause in out-door laborers not exceeding 25 per cent. Insufficient ventilation is by no means confined to the dwellings of the poor. In modern days, when workmanship of houses is more complete than it was in olden times, there are no longer latticed casements, chinky floors, ill-fitted doors, and above all the roaring pile in the spacious hearth, that supplied abundant ventilation to the houses of our forefathers; now, in proportion as houses are "well-built," every crevice is so thoroughly stopped that our rooms, when closed, are well nigh air-tight, and their occupants are enclosed in an atmosphere which is deteriorating in proportion to the number assembled. Add to this the vitiating effect of artificial lights, and of fires, the smoke of which may not freely escape for want of a due supply of air, and it will appear how modern houses often comprise the conditions calculated to produce this cause of disease. In public offices, schools, hospitals, churches, chapels, theatres, and other places where great

numbers are collected together the cause is still more fully in operation, and it is quite certain that not only is the public health much injured thereby, but much of the useful or agreeable objects of such assemblies is defeated through the discomfort produced by the closeness and foulness of the air. The ill effects of deficient ventilation are increased by heat and moisture; the former operating not only by increasing the animal exhalations but also by rarifying the air, and thus reducing the amount of oxygen in a given bulk; moisture probably acts in a degree in like manner, but also, as I conceive, by removing the difference between the air respired and that in the lungs, which promotes that diffusion or interpenetration of gases on which the access of oxygen to the vesicular structure of the lungs depends. For be it remembered, the air taken in at each inspiration, is not enough to reach far in the tubes; its transfer into the air cells is accomplished by the law of diffusion of gases, which operates in proportion to the dissimilarity between the gases, and difference in amount of contained watery vapor must exemplify this law.

In certain occupations, gases or vapors of a positively noxious quality are engendered, and augment the evils of deficient ventilation. Such is the case in many chemical works, slaughter-houses, and dissecting rooms, soap, glue and catgut manufactories, and in the employment in which materials are used containing mercury, white lead and arsenic. The deleterious operation of effluvia arising under these circumstances, may be short of a directly poisonous effect, yet, by adding to the unwholesomeness of the atmosphere, it gradually undermines the health, and is best to be counteracted by a more efficient means of ventilation.

Defective drainage, comprises much of the influences exercised by the preceding causes, filth and foul air; but it includes also circumstances that may exceed them in pernicious operation. The soil which drains from habitations, contains, in addition to excrement, dirty water, washings and remnants of animal and vegetable matters used as food, and other offal; and all these, when mixed and stagnant, constitute the corrupting slough retained in the cess-pools and privies, and carried into sewers. The stench which these exhale, when opened, gives some idea of their deleterious influence; and the fearfully poisonous nature of the gases which they emit has been proved by the sudden faintness and sickness, nausea, vomiting and diarrhœa, which have attacked persons engaged in emptying them. Instances have occurred of individuals being speedily asphyxiated by the gases of cess-pools; and where the result is not immediately fatal, a congestive or typhoid pneumonia ensued which passed into gangrene in the first stage. The precise nature of the gases evolved is not fully ascertained, but they obviously contain much sulphureted and carbureted hydrogen, which although known to be highly noxious, probably do not comprise the most deleterious part of these offensive effluvia. It is no wonder, then, that every ill-drained house should have a Pandora's box, ready to pour forth its evils whenever occasion offers, and always oozing them out in degrees sufficient to impair the health of the inhabitants and gradually to excite cachectic and other chronic diseases.

Hence, as it appears in all sanitary reports of all large cities supplied with

sewerage, the mortality rises in a remarkable proportion in all those districts of towns where sewerage is absent or inefficient. The worst nuisance of this description is the cess-pool without a drain from it, unemptied for months or years, and often imperfectly covered, it continually poisons both air and water, and typhoid fever, diarrhœa, cholera, dysentery, dyspepsia, inappetency and general weakness and mal-nutrition are results of different degrees of its pestiferous operation. Scarcely less injurious and more insidious in its operation, because the effluvium is less offensive, is the untrapped drain in connection with the sewers of large towns. This cause of disease exists extensively, not only in the street drains which are always open and emitting the gases of the sewer, the bad odor of which is perceptible in certain winds, but also in the drains of houses which are either intentionally or negligently left open, or are not air-tight from the absence of water in the traps.

Nothing is more common than to perceive the peculiar smell of the drain on entering a house, and in many instances I have found that this has proceeded from the trap left open, or dried up, and therefore inoperative, and requiring only the simplest expedient to stop the evil. When a single trap is open in a house, especially in the winter when doors and windows are closed, and there is no adequate supply of air for the fires in the house, the foul air is drawn up from the sewer in a strong current from bottom to top, carrying with it a pernicious influence.

It is suprising how ignorant servants and employers, and even professional men, are on this point, which so immediately concerns their health and comfort; and I have visited in many houses where this has seemed to be a cause of illness or impeded convalescence, in low nervous fevers, bowel complaints, influenza, neuralgia, headaches, and other similar ailments. In some instances the leakage may be in consequence of the inroads of rats, or in the displacements of the brickwork of the drains. It may be useful to state that, besides by the smell, which is not obvious to every one, the effluvia of drains may be detected by the darkening of white paint, and the early spoiling of meat in the lower basement story of the house.

Of all the exciting causes of disease, there is none so common as *temperature* in extremes, or in sudden transitions from cold to hot, or hot to cold. Both heat and cold have different modes of operation, and cause disease in different ways.

Extreme heat and extreme cold are directly destructive to life. Heat above 180 degrees coagulates the albumen of the blood, and thus obstructs the blood-vessels, and may cause other chemical changes of a disorganizing nature; a part that has been raised to this temperature, therefore necessarily dies; it cannot live again. It is true that we occasionally see boiling water at 212 degrees, boiling oil at 600 degrees, and red hot iron at 1,000 degrees, produce no other effect than inflammation and blistering of a part, but that is because these bodies have been applied too short a time to do more than violently stimulate the part, not time enough to raise it to the decomposing temperature; a few seconds more and the part would be killed. Cold below 32 degrees freezes the water of the fluids; and as it destroys the life of tender plants, so it kills parts

of animals, whether by the expansion of the ice injuring the delicate organization, or whether from the mere stoppage of the circulation, or other cause, is unknown. The part may be afterwards separated from the living parts by a vital process of inflammation and sloughing. A disorganizing degree of heat, extensively applied, acts like a violent mechanical injury—such as tearing off or crushing a limb. It directly depresses all the functions; the pulse becomes very weak, frequent and sometimes irregular; the muscular strength almost annihilated, and consciousness may be nearly or quite suspended. In this state, notwithstanding the stimulant properties of heat, and the inflammation which it generally excites, patients require stimulants, and they often die in a state of complete collapse, without any rallying or reaction. Extreme cold, also, if for sometime applied to the whole body, depresses and paralyzes all its powers, even that of generating heat, and therefore of resisting cold.

Sir Astley Cooper observed, that on plunging kittens into ice cold water, the arterial blood did not become venous in the veins; and Chossat found, in animals killed by cold, arterial blood in the left cavities of the heart. From a similar cause, the limbs became benumbed by extreme or continued cold; thus persons are drowned in cold weather much more speedily than in warm.

With less intense degrees of cold, on the other hand, which do not destroy the vital processes, more oxygen is absorbed, more carbonic acid formed and heat generated, which are the means by which animals resist cold. Heat, which is insufficient to decompose, is directly stimulant. It excites the function of parts, and when generally applied induces a state of fever. Thus when a person is in a vapor bath, or hot air bath, the pulse quickens, the whole surface becomes red, full and hot; there may be throbbing and pain in the temples, and a feeling of feverish oppression, until a sweat breaks out, which relieves the superficial tension and fullness and soon reduces the increased heat.

Similar results may ensue from confinement in overheated rooms, and if there be any tendency to local congestion or inflammation, particularly in the head, this excitement may be enough to produce it. The continuance of heat enervates, reduces the strength and appetite, and may excite a feverish state, with disorders of the liver. The oppressed breathing which is often felt in heated rooms may according to the view of Liebig, be ascribed to the smaller amount of oxygen in the air rarified by the heat; but it is probable that this is not the only cause. A mere partial exposure of the body to heat may produce still more disordering effects, if the part over-heated be capable of suffering from the excitement. Thus solar or artificial heat to the head may cause severe headache, apoplexy, or inflammation of the brain. Heat to the spine, as on sitting with the back near a large fire, is very apt to cause sickness and faintness, and, if continued, may induce convulsions.

Mere local inflammations, as of the eye, ear and skin, are frequently caused by exposure of the parts to heat. Gout may sometimes be excited in the feet by the same stimulus, and this is often attempted purposely.

Cold, on the other hand, is directly sedative. It contracts tissues and vessels, especially on the arteries, and thus at first renders parts pale and shrunk. In persons of feeble circulation, after bathing, the fingers are sometimes quite

bloodless and numb from this cause, the cold having quite closed up the arteries. But cold also retards the passage of the blood in the capillaries; the viscosity of the liquor sanguines seems to be increased; globules stick to the sides or move but slowly, and the part soon becomes purple or blue from the congestion of the blood in it. This purple color is chiefly seen in parts much exposed, and where the blood habitually enters with freedom, as the cheeks, ears, nose and hands. There is also much external congestion from the intro-pulsive operation of the cold—that is, the external parts being constricted and obstructed, blood accumulates more in internal parts, and the heart's force is more expended on these. This may, in part, account for the degree of stupor and ultimate insensibility into which persons exposed to extreme cold are apt to fall. In some such cases there has been a flow of blood from the nostrils or ears; the stupor has continued for hours after the heat and circulation have been restored, and, in fatal cases, much serous effusion has been found in the brain.

Hitherto we have considered the *immediate operation* of cold. But its indirect effects are most commonly known; these are reaction, irritation and their consequences, and they will be more manifest when the cold has been partial and the strength of the circulation generally not reduced. Thus after a part has been exposed to severe cold, when restored to warmth, it becomes the seat of increased flow of blood, which causes redness, pain and more heat, and various forms of inflammation may ensue, generally modified by the specific effect which the cold has exercised on the vessels and nerves; varying also with the strength of the general circulation. Thus, as the indirect effects of cold in a part, we may have chilblains, gangrenous or erysipelatous inflammation, and paralysis or altered sensation. As much of the disease in these partial effects of cold arises from the violence of the reaction and inflammation, and this depends on the sudden return of heat and circulation in the part, it becomes an obvious indication, for frost-bitten limbs, to retard this return by cold applications. But Dr. Allison well remarks that this precaution is not needed where the sedative effects of cold have been more general; here warmth and stimulants may be used freely, for there is no fear of partial injurious reaction. We have hitherto chiefly considered the manner in which cold causes disorder in the parts to which it is applied; but this is not the most common mode in which cold excites disease.

A person gets his feet wet, stands in a draught of cold air, or is exposed to cold when insufficiently clothed; he afterwards becomes diseased—not in the feet or the parts chilled, but in some *internal* part. He gets a sore throat, or a “cold in the head,” or chest, an inflammation of the lungs, a rheumatism in the limbs, a looseness of the bowels, a catarrh of the bladder, or any other disease to which he may be predisposed. Now, how does the *external* cold cause internal disease? How is the effect transferred from external to internal parts? Dr. Allison supposes that the cold operates chiefly on the nerves, and that the sensation which it excites is conveyed also by the nerves to the internal organs, where its morbid effects become manifest.

But it must be objected that the morbid effects of cold are by no means proportioned to the sensation or known nervous impression, which it excites.

A person may have his limbs aching and benumbed with general cold; yet internal disease does not result. But if he has been exerting himself, is perspiring, and then gets his feet wet, or is otherwise exposed to cold, especially partial without continuing his exercise, although he may scarcely *feel* the cold, yet he will be pretty sure to *catch* cold and to exhibit some one or other of its internal morbid effects. It would seem more probable, therefore, that external cold excites internal disease by deranging the circulation, particularly that in the capillaries. Cold checks the external secretion, the perspiration; it constricts and obstructs the vessels of the surface and must thus throw more blood inwardly, so that internal congestions are produced—these internal congestions impair the functions of the affected organs, especially those concerned in excretion and in other ways lay the foundation of disease. This intropulsive effect of cold will take place more readily and to a greater extent, in proportion to the weakness or sluggishness of the capillary circulation. This may be weak naturally; in this case there is a constant liability to “take cold.” Or it may be weak and relaxed from previous excitement, during fatigue or during sleep. Hence persons are more apt to catch cold after being in a hot room, after exertion, or when asleep. On the other hand, the injurious effect of cold is lessened or prevented by a vigorous state of the capillary circulation, whether that vigor be natural or excited by continued exertion, stimulating drinks, or by febrile excitement.

On this view, we can understand why partial but continued cold, such as from draughts of cold air, wearing damp clothes, standing on cold stones, and the like, should be particularly injurious, even when the sensation of cold excited, is not great. Such causes of cold, acting long on the same part, more completely constrict its vessels, check its secretions, thus more surely injure the balance of the circulation and by throwing a corresponding amount of congestion inwardly, fix it in some part predisposed to disease.

When a person has thus taken cold, which he knows by general sensation of coldness and weak circulation, rather than by any feelings in the part chilled, powerful measures which tend to restore the balance of the circulation, such as violent exertion, a hot or vapor bath, or stimulant drinks, may often yet prevent the further progress of disease.

The general application of cold, if not long continued, is less injurious than that which is partial, both because it also supplies the lungs with denser air, and therefore more oxygen; and its impression on the nerves of the face and chest excites more energetic respiratory movements, which maintain the heat and the vigor of the circulation. Healthy persons rarely take cold when traveling on the top of a coach or in a perfectly open carriage, but they frequently suffer in a close carriage partially open. Susceptibility to the morbid effects of cold is to be diminished by means which invigorate the capillary circulation, especially those which promote that process of reaction by which cold is naturally resisted. Now nothing tends to increase this more than sudden artificial applications of cold, as by cold bathing or sponging, followed by friction, exercise, heat, or stimulant applications, which promote the reaction. The great art in usefully applying cold with these inten-

tions consists in using the cold in such manner and degree, and having the body in such a state before and after the application, that the reaction or glow, which is the sign of vigor in the capillary circulation, shall be most fully produced. If, on the other hand, the cold be applied too long, or when the body is exhausted by fatigue, exertion or other cause, or is naturally too weak, depressing effects of cold will continue; there will be little or no reaction, and the sensations of languor and chilliness show that the cold has been injurious instead of beneficial.

The addition of salt to the water of baths gives it a stimulant property which promotes reaction, and a similar influence results from the force, or shock, with which the water is applied. This shock excites deep and forcible respirations through an impression on the incident nerves, and these are probably the efficient cause of the process of reaction which follows. The reaction which follows the judicious use of cold as a therapeutic agent, may prove serviceable, not only in resisting the further influence of cold, but also to remove congestions and irregularities in the circulation, and from other causes, and to excite in the capillaries and secernents new actions, which may supersede those of disease. It is thus the "water system" chiefly operates; and although too powerful an agent to be entrusted to unskillful and unscientific hands, it is a valuable addition to the means of combatting diseases, particularly of a chronic kind.

In the preceding remarks on cold, it must be borne in mind that the term cold is applied relatively, not absolutely; cold is not a fixed temperature or range of temperature, but something considerably below the temperature of the body. Thus, a body has been warmed throughout to a heat of 98 degrees, and kept in an excited state by that temperature, would suffer from a draught of air at 70 degrees, which would be cold to the body, and produce the physiological and pathological effects of cold. But if the body had not been previously warmed, so that the temperature of most parts of the surface might not exceed 85 degrees, or if, although lately warmed, the energies of the body had not been exhausted by it, then air at 70 degrees would feel pleasant, and produce none of the effects of cold.

This is one of the many facts which distinguish vital from physical properties. Physical or chemical properties are generally affected by fixed temperatures, independent of previous circumstances; but vital properties are variously affected through that power of adaptation by which they are enabled to maintain the same function in varying external circumstances. It is thus that atmospheric changes in variable climates are fertile causes of disease. In some parts of the country, on a sudden change of wind, the temperature sometimes falls 15 degrees or 20 degrees in the course of a day, and, without any peculiar exposure, the body may become so chilled by the change as to suffer to a degree amounting to disease. Internal congestions are the common result, but the seat of congestion and disorder will vary according to the predisposition. Thus, after the heat of summer, the organs most apt to suffer are the liver and abdominal viscera, which are disposed to disorder by previous excitement; on the other hand, in

the spring, after the winter cold, the lungs and air-passages are more prone to derangement.

NON-COGNIZABLE AGENTS.

We now proceed to notice those causes of disease, the existence of which is inferred only from the fact that disease prevails under certain circumstances, not well explained, unless we assume that causes do exist, although we cannot prove their existence in any other way. These comprise the *endemic*, *epidemic*, and *infectious* causes of disease. Some writers term them *zymatic* (a ferment), but inasmuch as this epithet involves a hypothetical signification of their mode of action, it does not seem expedient to adopt it here.

ENDEMIC CAUSES.

Persons living in a marshy district are often afflicted by a disease called *ague*, which does not attack those inhabiting dry lands. Again, the inhabitants of certain deep valleys are often affected with the swelling in the neck called bronchocele, or goitre; the neighboring mountaineers are not so affected; and when those from below remove their residence to the mountain, they often lose the disease.

These are instances of diseases which may be said to dwell among the residents in particular spots, hence they are called *endemic*—in the people. In some cases much doubt still hangs over the precise source of endemic influence; some supposing it to be the water, others in emanations from the soil; but this doubt does not apply to the cause of agues, intermittent and remittent fevers, which have been clearly traced to effluvia from marshes, jungles, rice grounds, etc. It has been found that when the wind blows across these marshes, the disease appears chiefly in persons residing to leeward of them, and not to windward; and has been abundantly proved that when the marshes are drained the ague ceases. From these and similar facts, it is concluded that the cause of ague is an *effluvia*, *miasm*, *malaria*, or bad air—an *aerial poison* which is supposed to be inhaled with the breath, and absorbed into the system. Those residing on the east side of a river, marsh, or swamp, will suffer from malaria, while those on the west side may be exempt.

The true nature of marsh malaria has not been determined. It has never been detected by chemical analysis. Professor Daniel conjectured that the malaria causing the destructive epidemic fevers of Western Africa might be sulphureted hydrogen, evolved from the sea-water by the decomposing vegetable matter brought down by the rivers; but hundreds of experiments in this country have negatived this notion, and the latest discoveries, with the aid of the microscope, lead us to believe (while yet uncertain) that miasma is emitted in the form of a germ taken up by the salivary glands, and thus conveyed into the system.

Although hitherto unknown in its nature, some knowledge of the general properties of marsh malaria has been obtained through its morbid effects. It seems to be heavier than air, for persons occupying a ground floor suffer more than those living in upper apartments. Water seems to absorb or destroy it, for persons on board ship, or on an opposite side of a lake, are not affected.

whilst, at a greater distance, a favorable wind will convey the pernicious influence overland. A damp state of the air, however, favors its production. Good fires in a house give marked protection to the inmates. It seems to be attracted by trees, for the vicinity of trees is doubly dangerous; whilst places beyond trees are more free from its effects than others at the same distance. The chief points known with regard to the sources of malaria, are, that it arises from the operation of the sun's heat on marshy ground, or on the banks and deltas of tideless rivers, after evaporation has proceeded to some extent, putrefaction of organic matter not being an essential part of the process. The virulence of the malaria, as shown in the severity of the disease excited, and in the number which it affects, seems to bear some proportion to the heat which has led to its development. Thus, the ague of this country, the pernicious of the intermittent of Italy, and the malignant intermittent of Western Africa and the West Indies, seem to arise from similar endemic causes, but differing in their virulence according to the degree of heat. A certain amount of moisture is, however, required, for a very dry season, which dessicates a marsh, stops the malaria, and the deposit of the evening dew always favors its production. Again, excess of moisture checks its development, so that a very wet season, as well as a very dry one, may render a marsh less unhealthy. Extreme heat, however, will not diminish the malaria from the banks of rivers, since portions of these are never dry.

For a similar reason, all the low shores of the Mediterranean are always malarious at the commencement of hot weather, the absence of a tide preventing that frequent salt washing and drainage which purifies other European shores, while the same rule holds good as to the Mississippi in this country. It is not only marshy or low grounds that engender malaria, although these are the situations commonly most favorable for its production. All that seems to be requisite is the continued operation of the sun's heat on moisture, stagnant at or near the surface of the ground.

I know instances in which ague has attacked persons living on a height of mountain lime stone, forming a small table land below greater heights. So also some swampy lands are not malarious, particularly peat bogs, which show a remarkable exemption from decomposition and effluvia of all kinds.

The morbid effects of marsh miasms are several; intermittent and remittent fevers of various types are the most remarkable of these, and they particularly affect the new residents; but the older inhabitants suffer from diseases of the liver and spleen, nervous affections, rheumatism, dropsy, and cachectic complaints, and are generally short lived. The first operation of malarial poison is manifest upon the nervous system, and then on the quality and distribution of the blood, which in the worst cases becomes speedily darker in color and otherwise altered, and accumulates to an extraordinary amount in internal organs, where it suffers still further from its stagnation and want of purification by the ordinary secretions. The fit of ague is the reaction of the vital powers against this decomposing and cumulative influence of the poison on the blood; and if the vital powers are strong, and the dose of poison not overwhelming, the fit successfully removes the internal congestion, and partially restores the purity of

the blood by an increase of the excretions ; but the poison being still in the system, reproduces similar effects after a longer or shorter interval.

One of the most remarkable characters in the disease resulting from malaria, is the periodicity of their attacks, and the diminution or cessation of the symptoms in the interval. This is probably due to the alternate accumulation of the malarious influence in the body and the reaction of the vital powers against it, thus showing its effect or influence upon the nervous system.

There can be little doubt that there are different kinds of malaria besides that which causes intermittent and remittent fever. Thus yellow fever and plague are endemic diseases probably arising from aerial poison.

The propagation and mortality of the latter, perhaps its very existence, are very much to be ascribed to the filth and impurities of the towns where it prevails. These are cognizable causes, the operation of which in exciting and predisposing to disease has been already noticed. Some other epidemic diseases can be traced to other cognizable causes ; as the Guinea worm, to drinking water containing its ova ; the pillagra of northern Italy, and the plica of Poland, to neglect of cleanliness, and unhealthy modes of living.

EPIDEMIC CAUSES.

There is another class of diseases, which, in their affecting many persons in the same place, and at the same time, resemble the endemic. But they differ in this respect, that they do not regularly return at stated seasons, nor are they confined to particular localities, although they infest some more than others ; they attack a whole district, a whole country,—nay, almost a whole hemisphere—within a very short time, then disappearing for an uncertain period, perhaps recurring within a few months, or years, or not within the memory of man.

These are called epidemics, like a blight, or pernicious influence blowing *on the people* ; and therefore affecting a whole country at once.

The cause of these diseases is supposed to be something in the atmosphere ; because the atmosphere is the only thing common to all the places so affected ; but the nature of the cause is not known. It is true that some diseases which seem to prevail epidemically, may be traced to the cognizable qualities, cold, heat, dryness, and moisture of the air. Thus diseases excited by cold sometimes prevail, like an epidemic in the winter ; those by heat in the summer ; catarrhs and quinsies abound in cold, damp weather ; croup and rheumatism become common during the prevalence of a cold east wind in the spring ; diarrhœa and dysentery are rife in the fruit season of the autumn. Others, again, such as dysenteries, fevers, scurvies, etc., have, in some instances, obviously arisen from deficient or contaminated, bad water, or some distinctly cognizable cause. And as these causes belong to the class of cognizable agents before noticed, it is unnecessary to advert to them here.

But there are diseases occurring epidemically without any discoverable connection with season or temperature. Thus an epidemic influenza may come on at any season of the year, rapidly spread through a country, and cease as unaccountably as it began.

So, too, diseases that are usually excited by other causes, infectious and others,

such as typhus and scarlet fevers, measles, diphtheria, small-pox, erysipelas, etc., sometimes prevail throughout a country so generally, and often with such peculiar character, that some influence besides their common causes must be concerned in their sudden increase. The nature of this influence is unknown; but it is called *epidemic*.

Lastly, various diseases, fevers and inflammations, and almost all sorts of ailments, at some periods assume a remarkable character in common, or *type* (as it is called); for example, being attended with unusual weakness, or unusual excitement, or a tendency to hemorrhage. This is called an *epidemic* or *prevailing diathesis*, or *constitution*. Thus, at uncertain times, fevers, wherever arising, and from whatever source, are more low, typhoid or adynamic, than usual; at the same time ex-anthemalous diseases generally partake of the same character; and even patients affected with inflammations do not well bear the usual depleting medicine. Of late years this constitution has more or less prevailed, and may be contrasted with a period of sixty years ago, when an inflammatory diathesis existed and depletion was resorted to by the old-school practice with a high rate of mortality, when, a few years later, depleting agents were death to the patient, and are so to-day.

It has been before stated that we are quite in the dark as to the nature of epidemic influence, or causes of disease. Many conjectures have been advanced, some of them with much plausibility, but without any substantial support.

Dr. Prout stated that shortly before and during the prevalence of the malignant cholera in England, he noticed a small but decided increase in the average weight of the atmosphere, as if from the addition of some ponderous gas.

At the same time he observed an unusual acidity in the saliva even of healthy persons, and such an absence of lithic acid from the urine that he seems inclined to suppose that a disposition to form oxalic acid was referable to the same unknown cause which was then producing cholera.

Many analogical arguments may be adduced in favor of a favorite notion of Linnæus, that epidemic diseases are caused by germs. The chief facts which countenance this view are the following:

1st. Epidemic diseases, in the uncertain periods and places in which their visitations occur, resemble those of blights, or tribes of insects, which are known to appear and disappear without evident cause.

2d. Proofs are accumulating of the occasional existence of parasitic animals and plants in living animals, and in some instances as causes of disease, as in the case of worms and other entozoa, acari in itch, the rot worm in sheep, the mycodermatous vegetation in porrigo, confervæ in impetigo, aphthæ, etc.

3d. The history and symptoms of some epidemic diseases, such as cholera and influenza, are not inconsistent with the hypothesis that they are caused by the sudden development of germs from ova in the blood. But there is a total want of direct observation in support of this hypothesis, and, perhaps, it may be objected against it that the seasons at which epidemics sometimes appear (as cholera in winter) are not always those most favorable to the development of germ life. The prevalence of the south-east wind was observed to be particularly favorable to the increase both of cholera and influenza, and I cannot but

think that this had some connection with the general tendency exhibited by the former to spread chiefly from east to west.

Has the morbid property of this wind ought to do with the haziness of the air when it prevails—a haziness seen in the country, remote from smoke and quite distinct from fog?

In the west of England a hazy day in spring is called a *blight*.

INFECTIOUS CAUSES.

The terms *infection* and *contagion* are applied to the production of a disease by a morbid matter proceeding from the body of another person who is, or has been, the subject of the same disease.

The proofs that disease is thus propagated from one individual to another are first, the general one, that those who have intercourse with the sick are infected in much greater numbers than those who have not; and secondly, the direct and individual proof of infecting a healthy person with matter taken from a person in disease.

This, although available only in some modes of infection, may be considered as a proof of the fact of contagion in general—that is of disease propagating its kind.

I have just alluded to differences in modes of infection; they may be further enumerated as follows:

1st. Infection through wounds, or an abraded surface, as in hydrophobia, the morbid matter being contained in the saliva, or guttural mucus of the rabid animal; and in cow-pox, the matter being contained in the specific vesicle, and acting on a puncture or abraded surface.

2d. Infection by contact, different parts of the body being susceptible of different diseases, as the urethra and conjunctiva in gonorrhœa, the vicinity of the external openings of the passage in syphilis, the skin in scabies, the scalp in porrigo—the morbid matter generally proceeding from similar parts.

3d. Infection by exhalation from the breath, perspiration, or other secretion, conveyed through the air to the mouth and air passages, as in the case of measles, scarlatina, whooping-cough, typhus and other infectious fevers.

Some diseases may be propagated in several of these modes; small-pox, for instance, may be communicated by punctures in the skin by inoculation, application to the eye, and by diffusion through the air, and, probably, the same might be effected with other febrile poisons if their precise source in the body was as clear as it is in small-pox. These different modes of infection merely show that the infecting matter can exist suspended in the air, as well as in a fluid or solid state; and, according to these conditions, it may get access to the human system by different avenues.

Many of those who are skeptical as to the reality of infection aim their objections only against aerial infection, and do not question the other modes. But the difficult problem is, not that the infectious matter may be diffused through the air—our smell informs us that animal effluvia are constantly so diffused—but the difficulty lies in the fact of infection by any mode, that is, that disease should propagate its kind.

There are only two parallel cases in nature in which analogous proportions are possessed by matter.

One is the case of what is called septic matter, leaven, or ferment, a little of which introduced into organized matter will promote changes and decomposition—"a little leaven leaveneth the whole lump." This property is supposed by Liebig, and other chemists, to be chemical, operating in the manner of heat by altering the molecular relations of compound matter; but by Turpin, Cagniard, De la Tour and others, it is stated that fermentation is caused by the production and growth of living molecules or vegetables, and that it spreads by the propagating power of these. This would transfer this case, that of leaven or ferment, into the next category.

The other case analogous to propagation of disease by infection is the vital power of generation, in this case as in that of contagion, matter propagates its own kind in the animal and the vegetable world. Does the matter of contagion consist of animal ova or vegetable seeds? Are infectious diseases the results of the invasions and operations of living parasites, disturbing in sundry ways the functions and structures of the body, each after its own kind, until the vital powers either fail or succeed in expelling the invading tribes from the system?

Such an opinion has been many times proposed, and is, in a degree, implied in the term *incubation* (sitting on eggs to hatch them), commonly applied to the period between the reception of the infection and the first appearance of the symptoms.

In support of this motion, may be added the case of itch, which certainly infests by an insect, the itch mite, and spreads by this animal propagations; and the case of porrigo, or favus, which depends on a minute parasitic vegetable, and infests through its seeds or sporules. But these, it may be objected, are instances of mere local disease, and by no means like the cases of infectious fevers and syphilis, which affect the whole system. The case of small-pox and cow-pox might seem more intelligible because the infectious matter is found to reside in the incipient pustule; but this throws no further light on the subject; and although M. Gruby has reported that he has found a few germs in the lymph of these vesicles, its disseminating property has not been traced to them. The parasitic nature of infectious matters may receive some support from the little that is known of their general properties which further deserve to be mentioned on account of their practical importance.

Infectious matter is destroyed by a temperature above 120 degrees Fahrenheit, and by strong chemical agents, especially chlorine; its activity is impaired by cold; and in case of ærial infection it is rendered harmless. Hence, many infectious diseases cease when hard frosts set in. On the other hand, warmth, closeness and filth increase the virulence of contagion, and become, as it were, a nursery of pestilence. Nothing tends to promote the spread of an infectious disease more than crowding together several who are suffering under it. Each one is a separate source of contagion, and if these sources are multiplied in an apartment, the air will be contaminated in proportion. This is the chief reason why, in fever hospitals and fever wards, medical attendants and nurses escape

infection much more rarely than in hospitals where the fever patients are widely distributed among other patients.

It may be useful again to point out the peculiarities which distinguish infections from endemic diseases; for these peculiarities are proofs of the reality of infection as a separate cause of disease.

Infectious diseases first attack individuals in any locality, then gradually spread in the vicinity of those diseased, or in the direction where there is most human intercourse.

Where care is taken early and completely to separate the diseased from the healthy, disease does not appear among the latter.

Endemic diseases may simultaneously attack many individuals in certain localities only; they do not spread beyond these localities. No separation of the sick from the healthy will save the latter, but removing the healthy to another spot gives them security.

Epidemic diseases simultaneously attack numbers in any locality; they increase not peculiarly in the vicinity of those first affected, nor in proportion to the intercourse with them, but rather in proportion to the prevalence of other conditions that may be called predisposing or determining causes.

It must not be forgotten that some diseases are suspected to originate and spread in two or even all of these modes. Perhaps this may be said of typhus fever, plague, cholera and dysentery. It has been already mentioned that infectious diseases, as small-pox, scarlatina and measles, are occasionally increased and modified by epidemic influences, and the same thing may be said of some endemic maladies. So also the aggravation of contagious and epidemic complaints by endemic impurities, makes it plain that all that class of causes may operate conjointly. It is under such circumstances of aggravation, or under those of strongly prevailing predispositions, as from famine, fatigue, confinement, or mental depression, that this class of disease becomes so destructive as to be called pestilential or malignant.

The direct operation of most of this class of causes is depressing, and where they are strongest and prevail most, the resulting disease is one of depression, *adynamia asthenia*, or prostration of the vital powers. These causes, as exhibiting a noxious property opposed to life, are therefore commonly designated *specific poisons*. But there is the antagonist principle of vital resistance in the system which leads to various processes of reaction which may be exhibited in different degrees according to the relative strengths of the poison and of this resisting power, and likewise often according to various cognizable agents which simultaneously act as predisposing, determining or co-operative causes. For instance, in warm weather the poisonous influences are generally strong, and the bodily powers weak; the resulting disease is one of more complete adynamia. In moderately cold weather, on the other hand, the specific poison is less active, and the system is ready to react, not only against it, but against the cold with which it may be combined. This causes a more inflammatory type in the consequent disease.

DIAGNOSIS.

The *diagnosis* of diseases is the distinction of diseases from one another. It may relate to diseases in their essential nature or pathology, or to those groups of symptoms that are classed as separate diseases by nosological arrangements. In other words, the object of diagnosis is to determine, either the intimate nature or seat of a disease, or its name and place in a classification of phenomena, grouped under the name of special diseases. According to the nosological arrangement, which has been recommended as the best at present, the division into special diseases is, as much as is practicable, founded on pathology, or the essential nature of disease; and diagnosis should also have a corresponding reference to this subject. But as it has been admitted that pathology is not sufficiently advanced to be the sole basis of nosology, so we must avail ourselves of other sources of information in regard to diagnosis.

Accordingly, much of the materials of diagnosis are the results of simple observation or clinical experience; and where these cannot be analyzed by any more rational mode, they may be measured or valued by *the numerical method*, or counting and calculating the results in a large number of cases.

Thus, diagnosis is chiefly derived from semeiology, and the results of clinical experience, arranged by pathology and statistics. In some instances the causes and the treatment of disease give aid in the diagnosis. Thus the malarious character of a patient's residence, and the efficacy of quinine in curing him, will contribute important evidence as to the nature of his disease. Diagnosis may be *special* or *general*.

General diagnosis comprehends the distinction between the principles or elements of disease, as, for example, between congestion and inflammation; between nervous irritation and structural disease, etc. *Special* diagnosis relates to the distinction of diseases according to their chief seat, where they have no particular head-quarters.

Thus the special diagnosis of inflammations, is between inflammation of the parenchyma of an organ and that of its investing membrane; or between an intermittent or a continued fever.

Special diagnosis also follows and distinguishes diseases in their further differences of a seat or character; as the part or extent of a parenchyma or membrane inflamed, the type of a fever, etc.

Thus special diagnosis is a branch of special pathology, and should be aided by an accurate and practical nosological arrangement. The mode of distinguishing between two diseases which resemble each other has been absurdly called *differential diagnosis*. It consists in pointing out the signs which are essential to the one and not to the other.

The signs called pathognomonic, where they exist, are the chief guides in differential diagnosis. The modes of investigating and distinguishing diseases will vary much in different cases, according to the class or symptoms that first present themselves.

This may be illustrated by the following problems. General pathology having pointed out the general nature of a disease, it is required to determine its precise seat. *Example:* In a case in which fever, hard pulse, determination of blood, and local pain indicate inflammation, the seat of the inflammation is determined by the chief seat of pain or uneasiness (in the chest or side), by the function most disturbed (difficult breathing and cough), to be in the organs of respiration; by the secretion proceeding from the part (rusty, viscid expectoration), and from the physical signs (impaired breath-sound and stroke-sound in part of the chest, with crepitant rhonchus), to be in the parenchyma of the lungs; that is pneumonia. General pathology here commences the diagnosis; which is completed by reference to symptoms explained by physiology and special pathology.

Previous history, prominent symptoms, or physical signs, having pointed out the seat of a disease, it is required to determine its nature.

Example: A person suffers from severe pain at the epigastrium; the previous occurrence of symptoms of indigestion, and the situation of the pain, plainly show the disorder to be situated in the stomach; the nature of the disease (whether inflammatory or nervous, etc.) is to be determined by general pathology; guided by this, and finding an absence of symptoms of inflammation, no increased heat of surface, no acceleration of the pulse further than what the pain would cause, and no increase of the pain on the imbibition of warm or stimulating liquids; and finding symptoms of predominate nervous properties, and the sudden attack, intense character, and transient duration of the pain which distinguish nervous and spasmodic affections, we decide that the disease is gastralgia or gastrodynia, and not gastritis. The diagnosis which is begun by local symptoms is completed by reference to the principle of pathology. Lastly, which is a common case, symptoms being too few or too inconclusive to lead the diagnosis, both the seat and the nature of the disease are to be determined.

A person complains of general uneasiness, weakness and chilliness, with various functional symptoms, but none of a prominent character. Clinical experience has taught the practitioner that such are the symptoms of incipient fever, and we proceed to investigate further the nature and cause of the fever. If he finds, on close examination of the functions and physical condition of the different organs, that one is the seat of marked inflammation, and that the fever is not typhoid, he judges that the fever is symptomatic of the inflammation, but if signs of marked local inflammation be absent, yet the fever continues with increasing symptoms of depression, weak, frequent pulse, brown, dry tongue, sordes on teeth, low delirium, etc., he recognizes typhoid fever resulting from the influence of a morbid poison on the system.

Thus every department of medical knowledge is brought to bear on diagnosis and in no branch is the information, as well as the judgment, of the practitioner

more brought to a test. Natural shrewdness and tact, with some general knowledge of the nature and treatment of disease, may sometimes enable a comparatively ignorant person to practice medicine with an appearance of success; but such a person can make no hand of diagnosis; and he wisely either avoids the whole subject or expresses his opinions in vague terms, and scrupulously avoids their being brought to the test of the scalpel.

The well-informed practitioner, on the other hand, feels that this is the subject which requires the full application of his mental powers and knowledge, as well as the keen exercise of his powers of observation; and in proportion as his senses are practiced in observing, his information well arranged in relation to what he observes, and his judgment matured in discriminating and deciding the results so will he be successful in diagnosis, and in applying it to prognosis and practice. In investigating the symptoms of a case with a view to diagnosis, prognosis and treatment, the observation is first drawn to those which at once declare themselves in the *aspect* of the patient, the expression of the countenance, the complexion, the posture, the manner of the movements, speech, etc., and these give important information to the observing practitioner at first sight and whilst he is interrogating the patient. After the first few statements of complaints, which are generally volunteered by the patient, the questions should be directed to the *history* of the ailment, including the *previous state of health and habits*, with regard to food, clothing, occupation, residence, etc., any former illness, *the mode of the present attack*, and its *supposed cause*, *the former symptoms*, and treatment, if any has been employed.

The answers to these questions will direct the inquiries in the most searching manner with regard to the *present state and symptoms*.

The mode of investigating these will partly depend on the clue given by the answers to previous questions, but the practitioner must not permit himself to be so far led by the patient's statements as to omit to examine the state of all the important organs and their functions.

The nervous system and its functions (sensorial, sentient, excitomotory and sympathetic), *the organs of circulation and their functions*, pulse of heart and arteries, capillary circulation of surface and visible parts, temperature, state of veins, etc.,) *the organs of respiration and their functions*, (breathing, cough, expectoration, voice, arterialization of the blood;) *the organs of digestion and their functions*, (tongue appetite, digestion, etc.,) *the organs of secretion and excretion and their functions*, (liver and intestines, kidneys, bladder and the skin;) *the functions of nutrition and assimilation*, (to be judged of by the condition of the flesh and comparative weight of the subject;) *the organs of locomotion and their functions*; *the organs of generation and their functions*, are severally to be made the subjects of inquiry and physical examination to such an extent as may be requisite to inform the practitioner of their true condition and connection with the past or present disease. The object of a complete investigation of the state of the patient is not merely to determine the particular disease under which the patient labors, but to discover what is healthy as well as what is morbid in his condition. The prognosis, or estimation of the amount and event of the disease, and the application of treatment requires this full

investigation. We have to consider, not merely *disease in the body*, but *the body in disease*, and it is by losing sight of this great practical axiom, that minute or microscopic inquirers, who may be singularly successful in special diagnosis, signally fail in prognosis and in practice.

In the examinations of patients there should be a perfect system or order observed, according to a well defined plan. The name, age, occupation, temperament, previous history, residence, sex, should be carefully noted and show inspection, palpation, measurement, percussion, pulse and heat. All interrogations should be put in a systematic order so as to arrive at a precise diagnosis, and a rational indication of cure. But, above all, let us never forget that we are examining a fellow-creature who possesses the same feelings as ourselves. Prudence, delicacy and kindness should, therefore, guide our movements.

The best standard of diagnosis is between fifteen and forty-five; then ossification is perfect, respiration, pulse, heat, etc., all in the conditions of perfect health. Inspection of the general posture of the patient in repose and in motion is often very suggestive. The position and attitude in fever and inflammation, in paralysis, hydrothorax, asthma, colic and spasmodic diseases are highly characteristic. The supine position denotes muscular debility, quick, forcible changes indicate excitement of the nervous system, while fixed or restrained movements are dependent on paralysis or inflammation.

Inspection of the countenance is of great importance; observing whether sadness, peevishness, despair, fear, grief, or joy is evinced; also as to color or conformation. Yellow color in jaundice and schirrosis. Pain in the head will cause the brows to corrugate; in the chest the nostrils to be drawn upward; in the abdomen, the lips to be raised and stretched over the gums and teeth.

Inspection of the chest refers to the form and configuration of the entire thorax or its various parts, and a careful comparison of the two sides, whether in motion or at rest. The motions of the chest are referable to inspiration and expiration, which pass imperceptibly into one another. In disease these motions are altered in various ways:

- 1st. By general excess or diminution, as in asthma or laryngeal obstruction.
- 2d. By partial immobility, as in pleurisy or augmented expansion, as in pneumonia or pleurisy.
- 3d. By increased rapidity, as in pericarditis, or unusual slowness as in coma.

Inspection of the abdomen is no less important than that of the chest. In health it is slightly convex, marked by elevations and depressions, corresponding to the muscles of its walls; the umbilicus and prominences of the viscera below. It varies with age and sex, smooth and flat in the young, broader inferiorly in females than in males, from the greater width of the pelvis. In disease it may be enlarged, generally and symmetrically as in dropsies, partially or irregularly in ovarian, hepatic, splenic and other diseases; it may be retracted from emaciation or intestinal obstruction. The respiratory movements of the abdomen bear a certain relation to those of the chest, and are increased or arrested with them. In pleurisy the respiratory movements are mostly abdominal, in peritonitis altogether thoracic.

Disturbed relations of the respiratory movements of both abdomen and thorax are useful points in diagnosis in hydro-thorax, asthma, anæmia, ascites, abdominal tumors, etc.

Palpation. This is a valuable mode of examination, and is practiced by simply applying the tips of the fingers or the whole hand, or both, and pressing with them. The most favorable position for palpation is the horizontal or erect position. The information that palpation gives us is—

1st. Increased or diminished sensibility.

2d. The altered form or shape, size, density, elasticity, etc., of the parts under examination.

3d. The different kind of movements to which they are subjected.

Pain, if inflammatory, is increased on pressure, but relieved if neuralgic.

In paralysis the diminution of sensibility can only be ascertained by feeling the part, and the limitation of the anæsthesia is best arrived at by pricking of the surface.

Alterations in size, form and density are often exactly made out by palpation; a change in elasticity, hypertrophy or atrophy, is also easily determined. Certain motions, as expansion and contraction, vibrations, frictions, grating, crepitation, are also easily determined by palpation. The natural premitus, or thrill perceptible on placing the hand on the chest when a person speaks, is increased or diminished in disease. Fluctuation is a sensation caused by pressing on or percussing parts in such a way as to cause displacement of their contained fluids.

Mensuration. This is another valuable mode of examination, and consists in measuring the distance between any two points by a graduated tape. In ascertaining the circular measurement of the chest or abdomen, that moment should be selected when the patient holds his breath at the end of an ordinary expiration, great care being taken that the tape is carried evenly round the body. For measuring either side of the chest or abdomen, a spinous process of the vertebræ should be taken as a fixed point, and the middle of the sternum or umbilicus for the other. The exact levels of the measurement should be carefully noted, and an allowance of an inch or an inch and a half of the right side. The pressure of the stays in a female enlarges the thoracic, and diminishes the abdominal movements. Mensuration is valuable in pleuritis, pneumonia, incipient phthisis, emphysema. An allowance of from one to two inches should be made, whether the patient be a right-handed or left-handed person. The expansibility of the lungs, and the amount of air expelled from the chest after a full expiration, may be accurately measured by the spirometer.

Percussion. The object of percussion is to ascertain the resistance and size of organs. It may be performed directly or through the medium of an interposed body, as the fingers or pleximeter (mediate percussion); it is best performed by spreading the fingers of the other hand. The ivory pleximeter possesses no advantages over the fingers.

The sounds produced by percussion arise from the vibrations occasioned in the solid texture in the organs percussed. The different density and elasticity

of these textures modify the number and continuance of the vibrations, and give rise to different sounds.

The sounds obtained by percussion are, essentially, three; and these three sounds are respectively dependent, first, on the organs containing air; second, on its containing fluids, and third, on its being formed of a dense, uniform parenchymatous tissue throughout. These tones, therefore, may be termed the *tympanitic*, the *humoral*, and *parenchymatous*.

The terms femoral, cardiac, intestinal, hydatid, may be used to express some modification of sound produced in percussing the heart, intestines, etc. To become thoroughly conversant with those sounds, practice and perseverance are indispensable.

The sense of resistance is an important consideration in percussion. It bears a relation to the density of the object struck—thus, firm and solid textures offer more resistance than the soft or elastic ones. The thorax of a child is elastic, that of an adult unyielding.

Before proceeding to percuss individual organs in persons laboring under disease, a clear and accurate knowledge of the limits and intensity of dullness on percussion of the thoracic and abdominal viscera in health should be well understood. Over the region of normal lungs, we have a clear tympanitic sound, Congestion or effusion of tubercle in its first stage may cause slight dullness and increased resistance, which only careful percussion can detect; but, in a more advanced stage, the dullness and increased resistance are well marked, and even an impression of hardness and solidity is communicated to the hand. Tubercular effusion takes place by affinity in the apex of the lungs. Inflammation at the base, when congestion or induration exists in those portions of the lungs which overlap the liver; it requires nice discrimination to detect it with certainty.

Fluid may be detected in the pleural cavity by percussing the patient in the recumbent position, where if but little exist there may be no unnatural dullness; but let the patient sit up, then the height or level of the fluid may readily be determined, and should be marked by a line of nitrate of silver. If the effusion fills the pleural cavity, no limit can be placed to the area of dullness. If the lung is emphysematous, or if air be present in the pleura, the sound becomes unusually tympanic. The diagnosis of affections of the heart constitute the most difficult in the art of medicine. Its size can be easily appreciated and any abnormal deviations detected. Its size varies, but a normal heart should occupy an area of dullness equal to the closed fist of the patient, but in effusion between the pericardium and heart, the area of the dullness may be great, so also in the various forms of hypertrophy. It may bulge out in pericarditis. It is, necessary to be cautious in percussing the liver, so as to determine its boundaries; the superior limit of this organ is generally found about two inches below the right nipple; its inferior border descends to the lower margin of the ribs; variations in the size of the liver from congestion, inflammation, abscess, hydatids, tumors or atrophy may be exactly made out by percussion. In icterus, the increase and diminution of this organ will be found to bear a proportion to the intensity of organic disease. If the gall-bladder is distended by bile, or contains gall-stone, it is usually detected by percussion and the dullness under the

inferior margin of the liver anteriorly and somewhat laterally, may be marked out.

The size of the spleen is four inches long and three inches wide. In diseased states it may be atrophied or enlarged. In percussing this organ place the patient on the right side. The sounds elicited on percussion of the stomach and intestines are of great value in determining the form of other organs as the liver, spleen, bladder, abdominal tumors and effusion of fluid.

To obtain a correct appreciation of the kidneys by percussion, the patient should be placed on his abdomen, so as to give us a clear appreciation of the renal organs.

A correct appreciation of the state of the bladder is derived by percussion.

Auscultation. The object of auscultation is to ascertain and appreciate the nature of the various sounds which occur in the interior of the body, and its utility is limited to the pulmonary and circulatory organs. It consists in applying the ear to the part, or indirectly through the stethoscope.

Before resorting to auscultation it is absolutely necessary that the student or practitioner be thoroughly conversant with the *normal* sounds. This must be learned from the living patient, never from books or lectures. Place your ear over the larynx and trachea of an adult male in perfect health, and you will hear two noises, one accompanying inspiration and the other that of expiration, called the laryngeal and tracheal sounds, or murmurs.

Move the ear to the right or left manubrium of the sternum and you will hear the same sounds diminished in intensity; these are the bronchial sounds or murmurs.

Place the ear under the nipple of the right side and two fine murmurs will be detected—normal vesicular respiratory murmurs—keep the ear in the same place and have the individual speak, and there will be a peculiar resonance of the voice called pectoriloquy or bronchophony.

With regard to these healthy sounds, it should be remembered that vocal resonance originates in the larynx, and diminishes or increases according to the distance of any point from the source of sound, and also to the power which the textures have in propagating it. Now, in all affections of the lungs, these natural sounds are altered; new abnormal sounds are developed.

The alterations of the natural sounds in diseased conditions may be increased, diminished, absent, or location changed; the most common alterations are in intensity, often stronger in one place than in another, or on one side (puerile respiration) indicating increased action at one part and diminished action at another. There may also be an alteration in character, the sounds becoming harsh, as in pneumonia; cavernous, when a cavity is formed, as in phthisis, amphoric in pneumo-thorax. There may also be an alteration in position, that is, that sounds which are natural to certain parts of the chest are heard distinctly at places where in health they are never detected; for instance, in pneumonia, bronchial or tubular breathing may be evident where only a vesicular murmur ought to exist. The inspiration in health is three times as long as the expiration, but, in certain diseased conditions, this relation is altered or inverted.

All the abnormal sounds may be classed under three heads: first, rubbing or friction sounds; second, moist rattles; third, vibrating murmurs.

1st. *Rubbing or friction sounds* are caused by some morbid change in the pleura, as effusion in pleurisy, where, instead of sliding noiselessly on one another, they emit a rubbing sound like the rustling of two pieces of silk or brown paper, or grating, rasping, and between these extremes we have every intermediate degree of friction noise.

The sound will depend upon what change the inflammation has produced, either a thick exudation, when the sound will be louder; should it be hard, dense or rough, there is a harsh or grating noise present in the various forms of pleurisy and pericarditis.

2d. *Moist rattles* are produced by bubbles of air traversing in a viscous fluid. They occur in the bronchial tubes when they contain liquid exudation, as mucous, or pus, or ulcers in some cases, so fine as to be scarcely audible (crepitating), so coarse as to resemble gurgling or splashing (cavernous), and between these two grades we may enumerate a large number of rattles, as mucous, submucous, subcrepitating.

For all practical purposes the term moist is applicable to all.

These rattles are heard in pneumonia, phthisis, apoplexy.

3d. *Dry vibrating murmurs* arise when the air tubes are obstructed, lose their elasticity, or are affected with spasm or thickening, whereby the vibrations into which they are thrown by the column of air produce tones of an abnormal character. The murmur is dry and the fineness or coarseness of the sound will depend upon the calibre of the tube or cavity thrown into vibration. Murmurs may exist from a fine squeaking or a hoarse snoring, common in asthma, dry bronchitis and emphysema.

Circulating organs in health or disease. In putting our ear to the heart we should pay attention to the impulse, to the character and rhythm of the sound, to the place where they are heard loudest, and the direction in which they are propagated.

First find the spot where the 'apex of the heart beats against the walls of the chest, then listen to the sounds. Place the ear a little to the inside of the nipple near the margin of the sternum and listen to the sounds there. In the first position you will hear the systolic sound; in the second the diastolic sound. There are two sounds, then, heard over the region of the heart. The first is dull, deep; more prolonged than the second, coincides with the shock of the apex of the heart against the thorax and immediately precedes the radial pulse. It has its maximum of intensity over the apex of the heart, below the inside of the nipple. The second sound is sharper, shorter, more superficial, has its maximum of intensity nearly on a level with the third rib and a little above and to the right of the nipple, near the left edge of the sternum. These sounds have received the name systolic, (contraction) and diastolic, (dilation.) The two sounds are in couples:

1st. There is the long, dull sound, coinciding with the contraction of the heart.

2d. There is a short pause.

3d. The short, sharp sound.

4th. A longer pause. All of which correspond with one pulsation.

With the systolic (contraction) sound we have the striking of the apex against the thoracic walls, then contraction of the ventricles, then rushing of the blood through the aortic orifices, followed by flapping of the auriculo-ventricular valves.

With the diastolic (dilating) sound, we have rushing of the blood through the auriculo-ventricular valves and flapping together of the aortic valve.

In disease there may be a modification of the sounds heard in health, and also new abnormal sounds developed. The modifications of healthy sounds are variations in their seat, intensity, extent, character and rhythm.

For example, the sounds may be heard at their maximum intensity lower than their natural point in cases of dilated hypertrophy of the left ventricle, enlargement of the auricles, or tumor at the base depressing the organ.

They may be higher owing to some abnormal swelling, or more on one side than another by effusions of fluid or air in the pleural cavity.

The intensity and extent of the sounds may be diminished where the heart is atrophied or softened, when there is pericardial effusion etc., concentric atrophy of left ventricle, or emphysema. The intensity and extent of the sounds are increased in cases of dilated hypertrophy, nervous palpitation, or when the adjacent parts of the lung are indurated, as in pneumonia and phthisis. The character of the sounds may be clearer or duller than in health, according as the walls of the heart are thinner or thicker. Often the sounds are muffled in cases of hypertrophy or softening of the muscular walls or when there is effusion between the pericardium and heart. Sometimes they are rough generally due to inflammatory change. The frequency of pulsations varies in different affections. In certain diseased conditions the beats are intermittent, in others irregular. There may also be a variation in sound; several sounds may be heard, then a sort of intermission depending either upon reduplication in the action of the valves when diseased, or on a want of synchronism between the two sides of the heart, sometimes from increased or irregular action of the organ, the sounds are bounding or tumultuous. All the diseased or new sounds of the heart may be classed under two heads:

1st. Friction murmurs.

2d. Blowing or vibrating murmurs.

The friction sound originates from inflammatory causes, same as friction sound in pleurisy. The vibrating murmurs depend on some organic change, generally the product of inflammation. These murmurs vary in character from a gentle blowing or puff from the nozzle of a bellows (bellows murmurs,) whilst others are harsher, grating or sawing; but all caused by some diseased condition of the valves. Sometimes the valves do not close and as a result the blood regurgitates through them; in some cases the valves are constricted, indurated, roughened and calcareous. The abnormal sounds may be single or double and have their origin either in the auriculo-ventricular or arterial valves, or in both. These sounds often resemble musical notes, more or less resembling the cooing of a dove, singing or whistling; all depending upon some excessive

narrowing of the orifices, perforations of the valves, irregularities in their margins, or exudations on their surface.

Not unfrequently a soft systolic blowing is audible at the base of the heart, or over the carotid and deep jugular vein, sometimes it is continuous, resembling the humming of a top. These murmurs are distinguished from valvular ones by being systolic at the base of the heart, by their softness, by their not being permanent, by their occurring in anæmic or debilitated persons or young girls. On listening over the arteries in the vicinity of the heart, we hear the same sounds as are produced at the sigmoid valves propagated along its course, but more distinctly as we move away from the base. Often we can detect a double murmur if near an aneurismal pouch.

On applying the ear to the abdomen in health, there are gurgling and churning noises heard, caused by the displacement of gas and water, most audible after a cathartic. In peritonitis the friction or grating sounds are heard owing to the roughening of the peritoneum by inflammatory effusion. No conclusion as to the nature of the disease should be positively relied on by auscultation and percussion alone without a knowledge of all the circumstances of the case. They are only modes of reaching an end. There are also other valuable means of diagnosing certain diseases, as the diathesis, temperament, of the pulse by the sphygmograph, the kidneys by the chemical examination of the urine, the strength by the thermometer, the internal condition of the organs by the endoscope, the amount of tubercular exudation in the lungs by the spirometer.

Temperaments. No practitioner can be successful unless he possesses a thorough knowledge of the temperaments. A description of these has been given under the head of "Predisposing causes of disease."

THE PULSE.

The Pulse. The pulse varies with the age of individuals; at birth it beats from 130 to 140 in a minute; mean rate for the first month, is 120; limits during the first year, 106 to 120; for the second year, from 90 to 100, for the third from 80 to 90; nearly the same for the fourth, fifth and sixth years; in the seventh year pulse about 78; from the twelfth year it differs but little from that of adult age, which is estimated at from 60 to 80, according to individual constitutions, etc. The common standard of frequency may be placed at from 70 to 75 beats in a minute. From the 45th to the 60th year the pulse gradually becomes slower, after this period, it again rises in frequency. Generally more frequent in women than in men. Climate influences pulse, more frequent in hot than in cold countries.

The time of day, slower in the morning than at other times; most frequent soon after dinner; slower during sleep than in the waking state. Bodily exercise accelerates the pulse; varies according to the position of the body; strongest while lying down; slower when sitting than when standing. Mental excitement influences the pulse; joy and anger renders it fuller and more frequent, grief, sorrow and fear depress it.

Mode of Examining the Pulse.—Not to be examined immediately on entering the patient's room; the examination to be repeated at short intervals; should

be felt in both wrists, the arm having its muscles relaxed by proper positions ; two or three fingers to be applied to the artery ; thirty or forty pulsations are to be felt at each examination ; examined in different positions of the body ; talking must be forbidden.

Pathological condition of the pulse considered in relation—

1st. To the force of the pulsations.

2d. To the rhythm or mode of the pulsations.

The most prominent and useful pathological states of the pulse consist in *frequency, quickness, strength, fullness, hardness and irregularity.*

A *frequent pulse* is one in which the pulsations succeed each other with preternatural rapidity ; a pulse beating more than 160 in a minute is scarcely to be counted ; great frequency of pulse always connected with great prostration of the vital energies ; *frequency* with *fullness* and *strength* of pulse, more dangerous than the same degree of *frequency* with *softness, moderate fullness.* When it rises above 120, in inflammatory fevers, much danger is to be apprehended.

Slow pulse, occurs from cerebral compression, internal venous congestion, and impairment of the vital energies ; as in apoplexy, congestive fevers, and malignant fevers.

Quickness of pulse, often confounded, improperly, with *frequency.* *Quickness* refers to the suddenness with which *each individual pulsation* is made ; *frequency* has reference to the number of pulsations in a given time. *Quickness,* however, is generally attended by *frequency.*

A *strong pulse,* is one which gives the sensation of preternatural resistance to the finger, during the *diastole* not to be confounded with a *hard* pulse. It is *hard* when the artery is felt firm under the finger like a *tense cord,* both in its systole and diastole, sometimes called corded. *Strength* and *great frequency* never united, a strong pulse seldom exceeding 115 beats in a minute ; a *strong* pulse indicates energy of the vital powers, and is therefore favorable.

A *feeble pulse,* the reverse of a *strong* pulse, it is *feeble,* when the artery produces a weak impulse against the finger during its diastole.*

Feebleness and *softness* of pulse not synonymous—the artery may resist pressure, and yet pulsate very feebly. The pulse is *soft* when the artery appears to be filled, and yet affords no resistance, vanishing by the slightest pressure.

A *very soft pulse* seldom attended with *great frequency,* or with irregularity, occurring in the advanced stages of fevers, favorable, when joined with great difficulty of respiration and suffused countenance, in pneumonic inflammation, indicative of much danger.

Full pulse—never very frequent, sometimes much slower than natural.

Small pulse—the diameter of the artery is smaller than natural ; in inflammations seated above the diaphragm, the pulse is generally full ; when seated below it is small.

Depressed pulse—small, and apparently *feeble,* and occasionally *quick,* does not depend on actual debility or exhaustion, but on internal venous congestion. Blood-letting will raise this pulse ; distinguished from a small and weak pulse, by attending to the prevailing diathesis, by suffering a few ounces of blood to flow and watching its effects, and by observing the period of the disease in

which it occurs; if it is small and obscure in the beginning of acute diseases, we may presume it is depressed.

Intermittent pulse, when not attended by other alarming symptoms, not in general a dangerous sign; pulse sometimes habitually intermits; it is said to be of dyspeptic origin; occurs frequently in old age, and then probably depends commonly on some affection of the heart; occurs also in affections of the brain; a very unfavorable sign in the advanced stage of fevers, with great prostration; it is said frequently to precede a critical diarrhœa.

Unequal pulse, synonymous with irregular pulse, characterized by a constant variation of the pulsations, in frequency, quickness, size, hardness, etc. More dangerous than an intermittent pulse.

Dicrotus pulse, twice beating.

Gaseous pulse; *tumid*; *inflated soap bubble*; always indicates much prostration.

Undulating pulse. A wave-like rising and falling of the pulse, generally large, soft, feeble. When very small it is termed *creeping*, highly dangerous.

A morbidly natural pulse, occurs in malignant fevers, exceedingly unfavorable; can only be distinguished from a healthy pulse by the concomitant symptoms.

Shattered pulse. Pulse feels like a shattered quill under the fingers; occurs in opium eaters.

Obstructed pulse. Artery remains equally full during its diastole and systole.

THE COMPOUND PULSES.

The principals are the *synocha*, *synochus*, *synochuta*, *typhoid* and *typhus*.

1st. *Synocha*. Hard, full, frequent and strong; indicates high, inflammatory excitement.

2d. *Synochus*. Full, round, active, but *not* hard; occurs in the hot stage of intermittents, in remittents, etc.

3d. *Synochuta*. Quick, tense, small, hard, vibrating; occurs in sub-acute rheumatism, inflammation of the intestines, peritoneum, etc. *It is the hectic pulse*.

4th. *Typhoid*. Quick, small, slightly tense, *not hard*, and somewhat frequent; in the advanced stages of bilious fevers; the result of irritation in an exhausted state of the system.

5th. *Typhus*. Small, very frequent, somewhat quick; occurs in the advanced stages of jail, hospital, and other varieties of typhoid fevers.

THE TONGUE.

We will now turn a brief attention to the morbid appearances of the tongue. It is by these, and the secreted products, that we obtain our most direct intelligence from the internal viscera, though other less sensible results may be more significant of the nature and force of disease. The tongue is covered by a secreting membrane whose action is liable to great and various changes and which are attended by visible results. In its healthy state this membrane is covered by a thin fluid, which is partly composed of its own mucous product, and in part of saliva. The natural color of the tongue is a light florid hue, and

it is studded with short minute papillæ, particularly at its edges. In disease these appearances are apt to undergo various changes; the tongue being covered, more or less, extensively, with a coat of variable hues, white, yellow, brown or black, barely attached, or closely adherent, rough or smooth, etc. At other times the organ is preternaturally red or livid, dry or moist, enlarged or contracted, pointed or obtuse; its natural coat thickened or apparently scraped off or covered with patches, vermiform marks, etc., its edges jagged, the papillæ enlarged and elevated, etc. These conditions depend upon various modifications of the organic functions of the tongue, and as the organ is not much liable to independent disease it is obvious that its morbid aspects are mostly sympathetic results; and from its being continuous with the alimentary canal and the lungs, morbid influences are readily propagated upon it from either of its remote connections. But the vital relations of the tongue to the alimentary canal are far greater than to the lungs, though not strongly pronounced in health, and as intestinal derangements are more common than pulmonary, a far greater proportion of the morbid and intense influences from these two sources are exerted by abdominal disease. The coating which forms upon the tongue may consist mostly of mucus, or of a substance resembling coagulable lymph, or intermixtures of both, in various proportions, and of a morbid character.

All the phases which the tongue is liable to undergo may be influenced by the peculiar constitution of the patient, though, in a general sense, where the constitution is sound, these appearances are less subject to the contingencies of temperament than many other symptoms. We often observe, under various circumstances of disease, that the coating has suddenly disappeared, and we may be led into error in consequence, since, in many of these cases, the coating has been removed by the mechanical friction of food.

It would be in vain to attempt a definition of the various changes in the aspect of the tongue produced by disease, according to its nature and seat, accidental causes, etc. The appearances may vary much under apparently the same conditions, and it is not one symptom alone which may attend the tongue but the whole in combination that must guide our judgment. It is important also to observe that the tongue may be very natural in profound disease, even of the alimentary canal and liver; but, as observation enlarges, and the depths of physiology are explored, we shall find the morbid signs of the tongue a luminous index of disease. But there is one remark more important than the rest, namely, that there are no other symptoms which borrow so much light from others as those which relate to the tongue while, in their turn, they reflect back a light upon other symptoms. Inflammations of various parts and idiopathic fevers, at their outset, may present nearly the same appearance of that organ, especially as it regards the coating.

The general symptoms now contribute largely in determining the import of the tongue, though we shall generally find, on close inspection, that not only each class of diseases will offer certain peculiarities in the morbid aspects of the tongue, but as inflammation may effect one important organ or another, and the appearances will vary in the early stages of idiopathic fever as the burden

of disease may happen to be distributed. In the progress of the same affections the tongue is continually fluctuating in the indications it may supply.

The disappearance of the coating in fevers and inflammations generally begins at the edges of the tongue, and is commonly indicative of an improvement in health, though not always. When these exceptions occur some other morbid appearance is apt to follow immediately, as preternatural redness, or nakedness, or dryness, etc.

If indicative of improvement the tongue commonly clears up fast along with other auspicious changes, though it will be frequently kept up, more or less, by remaining although slight, visceral derangements in the abdomen. Absolute diseases of the digestive organs affect the tongue more variously and directly than other parts, according to their nature, seat, intensity, duration, peculiarities of the constitution, habits, etc.

The following will be found reliable in making up a diagnosis based, in part, on the appearance of the tongue :

Transverse fissure, intestinal irritation.

Longitudinal tracks, kidney irritation.

Sharp-pointed, nervous irritation.

Large, flabby, glandular disease.

Red tip and edges, sharp-pointed, white coat in middle, chronic gastritis.

Smooth, raw beef tongue, inflammation of stomach.

A thin, white, even layer, gastric irritation.

Large, flabby, tremulous, creamy, delirium tremens.

Tremulous and patient darts it out, as in chorea.

Buff coat, very dry, sharp-pointed, perhaps papillæ elevated, typhoid fever.

Thick coating, in greatest extent, white or brown, in mal-assimilation.

Peculiar buff leather appearance, in cases of enteritis and hepatitis.

Dark or charcoal hue at root, blood poisoning.

Yellow or gingerbread, bilious.

Dark brown, malignant fever.

Strawberry color, surface generally coated, papillæ projecting remarkably, scarlatina.

A less projection through a thin, white coating, still red and moist, often accompanies hysteria.

Shining and glazed, especially when chapped, alconotus of bowels.

Aphæ and ulcerations, imperfect nutrition, mal-assimilation, the action of air and light generates microscopic parasites.

Patchy tongue, chronic irritation of bowels.

Heavy white coat and occasionally red papillæ, gastric fever.

White mucus membrane, elevated, very moist, gastric catarrh.

Tongue drawn to one side, caused by effusion upon base of brain on opposite side.

THE SKIN.

Peculiarity, thin and detached from subcutaneous structure in phthisis.

Same, but in a less degree, in all wasting disease.

A feeling of fullness and tension in all eruptive fevers, amounting to a sense of hardness in erysipelas, and producing a gritty feeling in small-pox.

Nails chubbed and hair falls off in tubercular disease. Hair falls off in secondary syphilis and in recovering from fevers.

Dry, harsh skin, most marked in children, in disease of abdomen, especially of a tubercular character. Remarkably soft and moist in delirium tremens.

Perspiration profuse and sour in acute rheumatism. But in some of the most intractable forms of disease it is also very sour; an excessive perspiration of any kind is often attended with miliary sudamina.

Colliquative sweats constantly attend later stages of phthisis, and on profuse suppuration, such as lumbar abscess.

Rigor, as in cutis anserinæ, is a common precursor of fevers.

The cracking emphysema is very characteristic.

So is the doughy character and pitting under pressure of anasarca.

Rigor occurring during process of inflammation, indicates formation of pus.

Slight rigor in heats and colds indicates nervous depression.

Protuberant eyeballs, wasting of tissue.

THE APPETITE

Becomes in diabetes, voracious.

In mesenteric disease, craving.

When intestinal worms exist, capricious.

In hysteria, depressed, morbid, eating chalk, slate pencils, etc.

In pregnancy, fanciful, longing for certain articles of food, apt to be abnormal.

In dyspepsia, very variously altered.

THIRST.

In diabetes, remarkably increased.

In cholera, very urgent.

In diarrhœa, urgent, but less than cholera.

Diuresis, with uncommon thirst, when there is no sugar in the urine, generally due to hysteria, not attended with hunger, low specific gravity.

ALTERATIONS OF COLOR.

In all varieties of anæmia, remarkably white.

In anasarca, from albuminuria, same.

Phlebitis, milk white.

Nervous irritation, marbly whiteness.

There is a certain yellowness of the malignant aspect, which is distinguished from jaundice by the pearly lustre of the eyes.

The yellowness of jaundice varies from a pale to a deep green yellow.

Redness of skin, when local, indicates congestion, when general, is more frequently due to measles or scarlatina, or simply to febrile heat, it is the marked characteristic of erysipelas, erythema, gout and acute rheumatism.

In disease of the spleen the skin has a muddy hue.

In Asiatic cholera, blue, also in forms of bronchitis, diseased heart, and in morbus curruleous cyanosis.

Livid in commencing gangrene, and might also sometimes be called livid in disease of the heart.

Spots and patches of discoloration, valuable in recognizing certain fevers, purpura, and scurvy, colica pectorum, nitrate silver, syphilis and most cutaneous affections.

In Addison's disease, bronzed.

In a stage of shock blueness of skin may be expected in many cases of malarial fever.

The skin is of a peculiar uriniferous color and odor in uræmia.

Purple spots or patches in purpura or scurvy.

SENSATIONS.

Flushes of heat, alternated with coldness, we find in nervous derangement.

An aura epileptic sensation, as of a gust of air on side of neck and head or up the arm, and sometimes a creeping sensation up the leg, in epilepsy.

Numbness and pricking sensation, (as in a limb asleep,) in paralysis.

There is a contrast in genuine cholera between the corpse-like coldness of the body and the sensation of heat with which the patient is oppressed. In diarrhoea there is generally chilliness.

The common complaint in fever of chilliness when the skin is hot is a sensation of an opposite kind.

The hypochondriac's sensations are opposed alike to the evidence of the senses and the conclusions of reason.

A patient's complaint of a want of sleep is almost sure to be exaggerated. The attendant's statement is alone to be relied on.

The sympathetic pains are important.

Pain in the right shoulder is indicative of inflammation of the liver,

Pain of the sacrum, of disease of the uterus. In the knee, indicative of the hip; of the meatus, of stone in the bladder. At the orifice of the urethra, thigh and testicles, ovary, of inflammation of the kidneys, nephritis or nephralgia. In the cerebellum, of exhaustion of the lumbar portion of the spinal chord. A feeling as though the upper part of the scalp is rising indicates irritation of the pneumogastric nerve and its recurrent branches. Drowsy, sleepy sensation (coma) is due to bile, or urea in the blood.

Pain, anterior and posterior, over chest and abdomen, is indicative of carcinoma.

EMACIATION SEEMS TO AFFECT.

In phthisis the arms and thorax most, face least.

In abdominal disease, the lower limbs and face.

In malignant disease, the general features, increase of bulk becomes remarkable.

When upper half of body is anasaruous, and not the lower half, or when one limb is œdematous.

When the head is enlarged, in chronic hydrocephalus.

When one side of the chest projects from the effusion of fluid, or internal humor, or one side of the abdomen from the same cause, the aspect is very significant.

A delicate appearance, with long fringed eye-lashes, often points out the tubercular diathesis.

Thickened alæ of nose and upper lip, of scrofula, most marked in childhood.

The pallor of anæmia is very important.

In chlorosis, waxy, greenish.

In kidney disease, pasty.

A puffy appearance about the eye-lids, along with anæmia, is indication of albuminuria.

The sallow hue of malignant disease appears to be only another form of anæmia.

In heart disease and chronic bronchitis the blue color, especially of the nose and lips, is remarkable, and contrasts strongly with the dusky flesh of pneumonia, or the hectic flush of phthisis.

In typhus, congested features and suffused eyes are exceedingly characteristic.

Irregular habits of living, generally indicated by a bloated, blotchy face.

In erysipelas, parotitis, facial paralysis, etc., the features undergo remarkable change.

POSTURE AND GAIT.

Inability to stand depends on weakness, vertigo or paralysis.

In weakness and vertigo the patient reclines, in paralysis he sits.

In curvature of the spine and disease of the hip the body is bent to one side.

In excitement the gait is quick.

In debility, slow.

In diseases of the brain and paralysis, laborious, staggering or uneven.

In rheumatism and disease of joints, stiff and halting.

In chorea, constant moving.

In nervousness, tremor, and, more especially, in delirium tremens.

Tonic spasm occurs in tetanus, disease of the spinal chord, poisoning with strychnine, etc. When long continued it is probably associated with inflammatory softening of the brain.

Catalepsy is a peculiar form of tonic spasm, cramp is its mildest manifestation.

Clonic spasm occurs in epilepsy, eclampsia, chorea and hysteria; subsultus is also a form of clonic spasm, allied to tremor.

In mania and delirium, the muscular movements generally are exalted.

The muscular movements are diminished generally in idiocy and imbecility, and lost in paralysis. A certain restlessness sometimes belongs to hypochondriasis, and more rarely to hysteria, allying them with delirium in the external manifestation.

POSITION IN BED.

Head chiefly elevated, in disease connected with the heart, less frequently in disease connected with the lungs.

Head leans forward when there is pressure on trachæa.

Patient may be unable to lie down from pain of head or giddiness.

Lying on the back is the position of debility; it is then combined with listlessness. Also position of paralysis, when combined with inability to alter it; also, of stiffness and pain in acute rheumatism, when chiefly characterized by stillness. Same position generally assumed in peritonitis, when combined with drawing knee up towards abdomen.

A prone position is generally only assumed in abdominal spasm or colic, sometimes, but much more rarely, in consequence of the pressure of an internal tumor.

When fixed on one side we may generally assume that the breathing is much obstructed in the lung of the side on which he lies; when he is unwilling to turn to either side it is commonly from the sense of pain accompanying inflammation; pressure produces pain on the affected side, while turning on the opposite, causes a sensation of dragging; a doubled up position with or without vomiting is present in colic, the passage of a calculi through the ureters.

EXPRESSION.

In disease of the heart, and in urgent dyspnœa, acute laryngitis, the face is remarkably anxious and contracted.

When there is much pain, especially in a vital organ, the face is pinched and contracted.

Immobility, most remarkable in catalepsy, or in states of unconsciousness, and perhaps under the influence of spasms, and in tetanus.

In nervousness and hysteria the opposite state exists.

By the swelling of œdema or erysipelas, the expression of the countenance is materially altered.

THE URINE.

No product is so variable as the urine, both in health and disease. The kidneys, being designed for great and immediate common purposes in the animal economy, in depurating the blood, or in transiently fulfilling the office of the skin, etc., are rendered highly sensitive to the presence of redundance in the blood, and to the variable states of other parts, especially of the skin, whose analogous office is so liable to interruption. The same Great Intelligence which ordained these final causes, also endowed the kidneys with a stability of function unknown to other parts, (excepting the heart, for a like principle,) where irritability is easily impressed.

Being therefore but little subject to actual disease, the variable product of the kidneys commonly supplies only a report of the nature of the ingesta, or of the influences which the skin or other parts, and even the mind, may exert upon these organs in a healthy state, or of the mutable state of the body in regard to nutrition, or of any disturbing reflex influences short of disease which may be

extended to the kidneys by diseases of other parts. It is thence obvious, that but little dependence in a general sense, can be placed upon the sensible changes of the urine as indicative of the nature or force of disease; and I have endeavored to show, here and elsewhere, that we may rarely trust to chemical analysis of this product. Beyond a transient inspection, occasional evaporation is about all that we require, unless, also, some practical test in calculous affections. The aspects of the urine become more important in renal diseases and in those of the bladder.

Albuminous urine appears in organic affections of the kidneys, in dropsy and after pastry and other indigestible food, and is produced by mercury and cathartides. It is evident, therefore, that the presence of albumen, about which so much has been written, indicates nothing specifically, unless supported by some other symptoms.

A sensation like that of *strangury* is often felt when the urine is high colored and scanty. This is commonly owing to abdominal disease, particularly hepatic congestion. The following are the general characteristics of the urine in various diseases in which it serves as a means of diagnosis:

In hysteria, remarkably pale, limpid and abundant, but not persistently so. Low specific gravity, often as low as 8 and 10.

In febrile states, generally dark colored, with or without deposit, on standing. When the watery portion is deficient and much acid is secreted, there is a copious deposit on cooling.

In disordered liver, it gives red stain to the vessel in connection with the foregoing states.

In jaundice, presence of bile gives it a dark porter color.

From altered blood, has a smoky color when acid, a pinkish hue when alkaline, quite crimson when much blood is passed.

Urine, very highly colored, depositing a copious brick-dust sediment, being an excess of uric acid, present in all inflammatory affections except nervous, due to a rapid waste of fibrous tissue.

We have this condition in its greatest extent or intensity in inflammatory rheumatism. Urine, when depositing a white sediment, flaky or gritty, is indicative of an alkaline diathesis, and is always present in diseases of the nervous system.

ALVINE DISCHARGES.

Alvine discharges. The *fæces* consist of the superfluities of food, and the remains of various secreted products, which are poured into the intestine from the liver, salivary and pancreatic glands and mucous tissue. But neither the bile nor saliva, nor intestinal mucus, nor the gastric juice, appear in the *fæces* in their natural state. Combined, however, with the *fæces*, they offer a general natural standard for comparison with the morbid conditions.

In disease the foregoing natural conditions as to quantity and quality of the secretions, and the state of the residual food, are more or less affected, according to the nature of the morbid states which may attend the various parts concerned in digestion.

From the number of organs, therefore, that are liable to be simultaneously in-

volved in morbid processes, and which contribute their fluids to the alvine dejections, as well as the imperfect changes which the food undergoes in the stomach it would seem more difficult than it is in reality to derive any just conclusions as to the nature of disease from the condition of the fæces.

The following are the most important signs to be noticed in the alvine discharges:

1st. *The residual food.* This gives us intelligence as to the state of the stomach. It is mainly important in chronic affections of that organ, or during convalescence from acute disease; since, till the subsidence of acute diseases, the food should consist mostly of fluids whether the stomach be the direct seat of the affection, or disturbed by reflex nervous actions, or liable to irritation from solid food in the absence of those conditions. We may be thus guided, also, as to the food which should be avoided.

2d. *The nature and quantity* of the matter discharged. This, in acute diseases, will consist principally, of the secreted fluids, which, so far as produced, may cease to be in any way appropriated and accumulate in the intestines, though much, in respect to the apparent accumulation, may be due to the absence of residual food with which the secreted products are habitually intermixed.

Their deficiency during the operation of a cathartic denotes severe disease in the organs of digestion, especially the glandular, or that an unsuitable cathartic has been applied. If the evacuation be large, watery and colorless the cathartic was bad. It has irritated, morbidly, the intestinal mucous tissue, has not reached the glandular function of the liver or may have propagated injurious influences upon that organ.

If a judicious cathartic has been employed, and not in excess, and mucus alone follows, it shows inflammation of the intestinal mucous tissue, and disordered action, probably congestion, of the liver, which will be aggravated by a repetition of cathartics till the disease be lessened by other remedies, or delay of all remedies may be sufficient. Again, a *redundancy* of bile may be either unfavorable or favorable, and its proper interpretation may depend upon a variety of considerations; such as color, the period and past history of the disease, the general and local vital signs, the nature of the remedies, especially of the cathartic employed, etc.

When the bile is redundant, the mucus is apt to be, at least, natural in quantity, and when the latter is in excess the bile is commonly deficient, since, in the latter case, the formation of bile is diminished by morbid reflex nervous actions propagated upon the liver by the mucous tissue. It is the same as when morbidly irritating cathartics diminish or stop the secretion of bile. And here I will say that I am far from meaning alone what are denominated the drastic cathartics; since calomel, blue pill, and even the neutral salts, may be more morbid in a given state of disease than scammony, colocynth, aloes and especially jalap, in doses of corresponding energy. In our practice, however, we do not resort to these irritating agents, active cathartics being seldom indicated in assisting the natural effort to throw off morbid accumulation.

When the secreted products increase after having sustained a diminution, the

sign is, perhaps, always favorable; but how far so will depend upon other symptoms, and upon the amount which is due to nature. In some hepatic congestions cathartics procure but small evacuations till the disease is considerably overcome. The secretions then start, become abundant, long continued and a salutary bilious diarrhoea sometimes sets in. The same is also true of jaundice, whether arising from disease of the liver or from obstructions by gall-stones.

3d. The appearance of the fecal matter as to *color*. This is a very important index in many respects. We should distinguish carefully, however, what may be owing to color of food, or what may be imparted by medicine, from that which is morbid. If the discharge be light it shows a suspended secretion of bile, which may be owing to the irritation of an improper cathartic, or to inflammation of the intestinal mucous tissue, or to inflammation or congestion of the liver, or to jaundice, etc., and the other symptoms will clear up our knowledge upon the subject. In all these cases, as disease gives way, the bile is secreted in redundancy, is apt, at first, to be blackish, or of a deep green, then changing to brown, or to a dark yellow, till it finally becomes of a lightish yellow. The worst appearance of the bile, *per se*, whether vomited or dejected, is a bluish color. It shows severe and obstinate congestion of the liver. Bloody mucus denotes more intense inflammation of the intestinal mucous tissue than a redundancy of simple mucus. It shows dysentery if attended with pain and tenesmus. Hemorrhage from the bowels or stomach denotes venous congestion and inflammation of the mucous tissue in most cases; though now and then in congestive fevers the hemorrhage comes from the liver. In all these cases it is an effort of nature to relieve a very formidable condition of disease.

4th. Of the *sensations* produced by the fecal discharge on passing the anus: These are mostly of a burning or excoriating nature, and denote either the presence of a morbid condition of the bile, or of acids that are generated by the decomposition of food. The suffering, however, generally arises from an acrimony of the bile. Aloes will, doubtless, produce irritation of the anus in some degree; but when consequent on the use of that medicine it arises mostly from the bile which alone it is particularly instrumental in eliciting from the liver, while its sympathetic irritation of that organ will also increase the morbid acidity of the bile. The fact is particularly important, as will be readily seen from its bearings upon our conceptions of disease, and of the virtues of remedial agents.

From what has been now said, it is evident that the dejections should be always examined in all diseases of any severity and obstinacy, and, if produced by a cathartic, they should be all examined, and each one in the order in which it may take place. This is the only way of practicing medicine intelligently.

The evacuations often supply more information as to the state of the abdominal viscera than all other symptoms. I say, therefore, when cathartics operate, it is often important to examine the dejections in the order in which they may take place. The first may consist only of the *fæces* resulting from food, and of secretions which had not assumed a morbid aspect. With this partial inquiry, as is often the case, we may conclude that all is right with the abdominal viscera, or that they are in a state to bear any active remedies we may choose to ex-

hibit for other purposes. But, on inspecting the second dejection, we may find it like chopped grass, or of a black, pitchy aspect.

This brings us to the conclusion that mischief prevails at the fountain of life. What was evacuated at this second discharge was perhaps nearly the whole contents of the intestinal canal; and what may be evacuated at the third, or fourth, or farther dejections, will have been secreted after each successive evacuation.

If any salutary changes, then, be exerted by the continued operation of cathartics, we shall be likely to discover them in the color and other appearances of the discharges, as they come away, one after the other. If they remain without change more work is to be done.

It appears, therefore, that modifications of mucus, wheresoever it occurs, and of the component parts of the alvine discharges, are essentially different from the morbid phenomena attending the pulse, the tongue and the urine, as indicative of the nature and force of disease. The first being the direct results of organs morbidly affected are critically significant of the pathological conditions. The last three, when the organs are not the seats of absolute disease, are indirect media which denote the intensity and modifications of the nervous influence that may be reflected upon the organs by disease of the other parts. In our ordinary investigations of symptoms, therefore, which relate to the tongue, the circulatory organs, and the kidneys, we are employed, however unconsciously, in estimating the relative conditions of reflected nervous influence, and by which we judge of the nature of the pathological conditions in which these influences originate; although, in respect to the tongue, its morbid phenomena may be more or less owing to continuous sympathy in affections of the alimentary mucous tissue.

The following synopsis will serve to guide us in making up a diagnosis from the stools, other indications corroborating :

CHARACTER OF THE STOOLS.

Simply watery, characteristic of diarrhœa.

Undigested food observed, when functions are impaired.

Fæces solid, condition of constipation.

In fever, ochrey color.

In cholera, resemble rice-water.

In acute dysentery, scybhalous lumps, with blood or mucous pus serum, product of inflammation.

In chronic dysentery, muco-purulent discharges.

When an internal abscess discharges, per intestinal canal, pure pus.

When blood is mixed with the injeſta, in stomach or upper part of the canal, black and pitchy coffee grounds.

In hemorrhoids or hemorrhage, lower down in canal, more or less mixed with blood of a more natural color.

In deficiency of bile, clay colored.

When fermentation supplants digestion, frothy and yeasty.

Form of fæces altered by a stricture of the rectum.

Prostrate gland being enlarged, fæces flattened.

Hepatic and pancreatic diseases, fat in stool, of chopped spinach stools, irritation of the brain.

FREQUENCY OF THE RESPIRATION.

This, in health, amounts to 14-18 per minute in adult men, to a somewhat larger number in women and children, and to 40 or more in the new-born. A normal pulse divided by four gives you the number of healthy respirations per minute, provided there is no disease of the heart, lungs, brain. Position has but little influence on the frequency of the respiration, though it is rather faster when sitting or standing than when lying. The most extensive control is exercised over it by the will—it may be voluntarily deepened or made superficial, accelerated or retarded, or even arrested for 30-60 seconds. It goes on most quietly and regularly when Will and Perception are in abeyance, as in sleep.

Of the deviations from the normal frequency acceleration is more common than retardation. The rate may increase to 70, 80 or even to over 100 per minute; generally, however, it rises no higher than 40. Abnormal rapidity of respiration is called dyspnœa. Respiration is sometimes not merely quickened, but each inspiration may gain considerably in depth; at other times respiration is simply fuller, while its speed is scarcely increased, or may even be diminished. The latter condition also is known as dyspnœa. Stertorous breathing with coma, inflammation of the brain, apoplexy and congestive fevers such as typhus. Respirations imperceptible in collapse, most frequent in fevers and inflammations generally.

Most embarrassed in spasm of the cardiac and bronchii.

Hurried or excited respiration in hysteria or nervous irritation.

TEMPERATURE OF THE BODY.

The symptoms furnished by *animal heat* are various. The *temperature* of the human body may be increased; this may be general or local. In idiopathic and sympathetic fever there is general heat of the surface.

In external local inflammation there is always at least the sensation of heat; and the skin of the forehead is often hot in cephalalgia; the scalp in cerebral disease, the integuments of the chest in thoracic inflammations; the hands and feet in phthisis, etc. Heat may be permanent or transient. There are different varieties of heat. The acrid heat of typhus fever, giving to the hand a peculiar burning sensation, increased by prolonged contact, is called *cotor mordax*. *Diminution* of heat or *cold* presents the same varieties in relation to its intensity, seat, type and peculiar character.

Coldness is a simple sensation of cold; *horripilation* is accompanied with contraction of the skin and bristling of the hairs over the surface; a *rigor* is attended with involuntary tremor. A *chill* of more or less intensity occurs as an initial symptom of febrile affections, and of the phlegimasizæ, particularly pneumonia. In cyanosis the temperature of the body is generally low, and this symptom is very common when the circulation, from whatever cause, is

languid. Nervous and anæmic persons suffer from coldness of the hands and feet. That the maintenance of animal temperature is a function of the nervous system, properly so called, appears from a variety of facts generally known, the temperature either of a part or of the whole body being lessened by any cause that impairs the action of particular nerves in the former instance, or of the whole nervous system in the latter.

Normal temperature, 98 deg., adult life, slightly increased in children and diminished in old age.

An increase of heat over 98 deg. indicates diminished vitality.

99 deg. to 100, phthisis pulmonalis; from 100 to 103 deg., a condition of inflammation or fever, favorable. From 103 deg. to 105 deg. and upward, decidedly unfavorable.

A diminution of temperature is remarkably diminished in emphysema, atrophy of heart, cholera, collapse, etc.

PROGNOSIS

— OR —

FOREKNOWLEDGE OF RESULTS OF DISEASE.

Prognosis is that knowledge by which we are enabled to foresee the course, duration and event of a disease. Like the treatment of disease, it may be either *empirical* or *rational*.

Empirical prognosis is that which is founded on experience or observation only, without regard to the nature of the disease or the reasons which determine the results. It consists in the observation of the *good* and *bad* symptoms—that is, those symptoms which have, in a great majority of cases, been followed respectively by a good or bad result.

This mode of prognosticating the events of disease was the only one attainable in the early ages of medicine. The “prognostics” of Hippocrates chiefly consisted in the enumeration of good and bad signs; and the frequent truth of the distinctions which he has made on these points shows the extent and accuracy of his observation, or of the sources from which his information was drawn.

In a limited sense the same faculty of empirical prognosis is often acquired by nurses or other non-medical attendants of the sick. These can often tell when a patient is getting better or worse by the appearance of the countenance, the state of the voice, the mind, the strength, the breathing, the exertions, etc., whilst they may be in total ignorance of the nature of the disease and why the signs are good or bad. This kind of prognostic knowledge, although it may be useful in enabling a person to pronounce a patient better or worse, falls far short of that which ought to be expected of the scientific practitioner, who should not only have a greater number of prognostic symptoms within his reach, but should be able to foresee them, so as to anticipate, and, if possible to influence them in a favorable manner.

Rational prognosis is the estimation of the importance and tendencies of a disease from a knowledge of its causes, its true nature and symptoms, and of the power of treatment in regard to it.

Like rational diagnosis, it derives its evidence from all available sources, and makes the best use of this evidence by analyzing it and thus determining its value.

Thus in the early stage of inflammation of the lung, the discovery of the nature and seat of the affection at once shows the presence of a serious disease, whatever may be the state of the present symptoms.

The practitioner, in forming a rational prognosis, takes into account the extent of the inflammation, knowing, from experience as well as from reason, that this is a source of danger; he considers the duration of the attack, and from the signs and symptoms judges whether it is increasing or not.

These considerations may give him some insight into the severity of the disease, but his prognosis is to be determined by further conditions. He knows by experience and reason that inflammation of the lungs, although always a dangerous disease, becomes much less so when it is at a stage and in a subject in which a combination of stimulants, diaphoretics, expectorants and proper local stimulation can be well borne; thus, at an early stage, in a young and vigorous subject, even the most extensive inflammations may be cured by counter-irritation and other means judiciously employed, but if the disease has advanced far, and the functions of respiration have been for some days impaired by it; if the subject be feeble from infancy, or from extreme age, or from some previous disease, from intemperate habits, from a complicating disorder, or from any other cause, the prognosis becomes more unfavorable, inasmuch as there is little power in the system to bear the appropriate remedies, or to withstand the evil effects of the disease.

To take an example of another disease. In continued fever, certain symptoms have been found by experience to be of an unfavorable character. The pathological practitioner profits by this experience, but he analyzes the results and goes farther. He knows that the appearance of petechiæ, congested face, and stupor at the commencement of fever, are bad symptoms, but that they are so, mainly in proportion as they arise from the changed state of the blood induced by the depressing cause of the fever, and when, as it sometimes happens, these symptoms appear without any corresponding depression of the heart's power, as manifest by extreme frequency and weakness of the pulse, they are by no means of such unfavorable import, but may arise from the plethora of the subject. Again, symptoms referable to the excito-motory system—such as subsultus, hiccup, and convulsive affections—are generally unfavorable in continued fever; but they are so only when arising from the severe operation of the cause of the fever on the nervous centers; they are much less so when occurring in a nervous subject, in whom slight causes may induce them. The same remark may be made of a state of stupor, which would be of most serious import if dependent on fever alone, but it may be induced by slight fever or other cause in an hysterical subject. The pathologist is prepared for these differences and can qualify his prognosis accordingly. He can trace the danger of bad symptoms beyond the symptoms themselves, to those interferences with vital functions which render these symptoms dangerous, and of which these symptoms are not always the true exponents. As our limits do not admit of details, it must suffice to enumerate the chief circumstances from which a rational prognosis may be formed with illustrative examples. These may be arranged under two general heads:—1st. Those relating to the patient or subject, and 2d, those referring to the disease.

The age of the subject.—Acute diseases are ill borne at either extreme of age when the powers of reaction are less energetic to sustain the struggle. Hence

infants and aged persons are often carried off by acute attacks. Acute diseases prevail more in young and middle age than in advanced life, in which affections tend to assume a chronic form; also, from want of that power of reaction and resistance by which, in more vigorous age, morbid actions are thrown off. In early infancy there is always hope even with the most dangerous symptoms. "Infancy is the age of resurrection," says Chomel. It is at this period of life that the well-known adage, *ubi vita, ibi spes*, is so applicable. In old age, on the contrary, acute diseases, which assume a severe form, almost always terminate fatally. In middle age, the chances are more favorable and are greatest in youth and adolescence. The exceptions to this rule are the eruptive fevers, which are less dangerous in infancy, and certain organic affections, which are said to advance less rapidly in old age.

The sex of the patient.—Nervous diseases are most common and obstinate in the female sex, but they are more serious in the male sex. The occurrence of the catamenia is often favorable, as their suppression is unfavorable in the course of the disease. Pregnancy and lactation, during their continuance, suspend or retard the progress of tuberculous disease, and other disorders of the nutrient function, and the cessation of these conditions may excite the disorders into fresh activity.

Eruptive fevers, especially small-pox and scarlatina, are peculiarly fatal to women during and shortly after pregnancy.

THE TEMPERAMENT OF THE PATIENT.

In the sanguine temperament, disorders are apt to be acute or tending to a speedy termination, favorable or unfavorable; in the phlegmatic temperament, more chronic and not uncommonly latent or obscure in their symptoms; whilst in the nervous temperament the symptoms are very prominent, often exciting much suffering and alarm when little or no danger may exist, and they are likewise remarkable for their mutability.

PREVIOUS DISEASES OF THE PATIENT.

The same disease having occurred before prevents or renders milder a subsequent attack, in the case of eruptive fevers, whooping-cough, etc., but increases the tendency and the danger in case of apoplexy and most structural diseases. Albuminuria with dropsy is more curable, when ensuing after scarlatina and gonorrhœa is often unusually severe and intractable. After continued fevers, and other debilitating diseases, inflammations often assume a sub-acute or chronic form, which may escape attention and produce serious organic disease.

PRESENT DISEASES OF THE PATIENT.

These generally increase the severity or intractability of the new disorder, especially if they be structural. Thus infectious disorders and fevers are peculiarly fatal in persons with diseased heart, lungs, kidneys or brain. Yet moderate hypertrophy of the heart is rather a favorable circumstance in phthisis. Cutaneous and some other external diseases sometimes suspend attacks of the gout, gravel, diarrhœa, etc. Extensive emphysema of the lung supersedes tu-

bercles and most other lesions of the parenchyma, whilst it renders the bronchial surface and liver the seat of almost constant congestion or inflammation.

Cancer supersedes tuberculous disease, and reduces the proneness of the subject to inflammation.

PREVIOUS HABITS OF THE PATIENT.

Habitual intemperance, and excesses of all kinds, enhance the danger of all serious attacks and accidents. Extreme privations or over-fatiguing employments make people liable to fevers and other depressing diseases, and reduce the powers of reaction against them, and the same remark will apply to close confinement and want of sleep.

CONDITION OF THE PATIENT AT THE TIME OF ATTACK.

Extreme weakness or exhaustion from any cause renders persons *bad subjects* for most diseases.

Plethora increases the intensity of inflammatory affections. Simultaneous excitement of any organ, as of the brain from morai causes, may add a dangerous complication to continued fever.

THE CAUSE OF THE DISEASE.

Epidemic, endemic and infectious disorders are chiefly serious in proportion to the intensity of the cause. Thus the endemic of a hot climate is more dangerous than that of a cold climate; an infectious disorder is more severe from the concentration of its cause and co-operating influences, than one arising from more diluted and simple infection. By knowing the source of the disease, some estimate may be formed of its future severity.

THE SITUATION AND NATURE OF THE DISEASE.

The more important to life is the part attacked, and the more the disease interferes with its functions, the more dangerous will it be. Thus the heart, the lungs, the medulla of the nervous system, the kidneys and the blood, cannot be extensively attacked without great danger to life, and if the disease goes on to affect structure, as in inflammation, the danger is prolonged in proportion. In a few cases disease attacking an unimportant part, as the skin or an extremity, may prove dangerous on account of its tendency to spread to other parts, or infect the whole frame, as in cancer, gangrene, inoculated poisons, hydrophobia, etc.

THE EXTENT AND PROGRESS OF THE DISEASE.

The greater the extent of the disease, the more serious it will be in case of inflammation; but the severity of the symptoms is often not in proportion to its extent, intense and circumscribed inflammation causing more prominent symptoms than that which is extensive and diffused. The rate of the progress of disease most materially influences its effect on life and health. Thus the structure of the lungs, heart, kidneys or liver may become diseased to an extraordinary amount, without destroying life, if the advance of the lesion is very gradual, whilst a third or fourth of the same mischief would prove fatal if it were induced suddenly.

THE CHARACTER OF THE SYMPTOMS.

This is exhibited in the details of each disease. Those symptoms augur favorably which show a power of moderate and regular reaction, and a return of the functions to their natural state. The removal or alleviation of the more distressing symptoms of disease—the restoration of the natural appetites and feelings, bodily and mental—the retaining strength—the returning regularity and moderation of the pulse and other signs of equal circulation—the disposition to sleep tranquilly and awake at the usual times—secretions that have been interrupted or diminished being restored, and often in increased quantity, as if from accumulation, as in the case of *critical* perspirations, deposits in the urine, etc.—are among the chief signs of approaching recovery.

Bad or unfavorable symptoms are those which arise from such an impediment of one or more of the functions more immediately concerned in the sustenance of life, the circulation of the blood, respiration, nutrition and exertion. In proportion as these functions are speedily and considerably impaired, life is threatened, and there is an approach to its destruction by one or other of those terminations which are called *modes of death*.

Thus there is death by *syncope*—cessation of the circulation, by asphyxia, or apnoea—interruption of the respiration, and by *inanition*.

To these may be added death by the *pernicious influence of excrementitious matters*, and by poisons which cause death in various modes.

These different modes of death are most distinct when induced so speedily as to leave the functions, which they do not directly affect, comparatively vigorous and outliving that which has been chiefly injured.

Thus, in sudden death, from causes stopping the respiration, the heart continues to act for some time, until the death which has begun with the breathing function reaches it also. If we further trace the operation of these different modes of death, we shall find that they all agree in affecting the blood, either by altering its composition or arresting its circulation; and it is through one of these means that death extends to all the functions. Thus in death by cessation of the heart's action the circulation is at once arrested; hence, this is the most speedy mode of death.

Inanition obviously operates by reducing the circulating material and by further weakening the organs by which the circulation is carried on. Asphyxia we have already found both to impede the circulation and to alter the condition of the blood.

Excrementitious matter retained in the blood, and extraneous poisons, also operate in various ways: by impairing the irritability of the heart, or by injuring the medullary nervous function on which respiration depends; or by arresting the passage of the blood through the capillaries; or (and this probably includes some of the former modes) by so changing the properties of the blood itself as to render it unfit for its office of sustaining the activity of the functions; and the operations of all poisons, as well as other causes of death, may thus be traced to defective circulation or composition of the blood.

It is the more necessary to keep these points in recollection, because they show why death from disease often takes place without distinctly beginning

with any set of functions; but all fail from want of proper blood—their natural support.

It will be useful to mention the chief varieties of the modes of death above noticed, and to state their symptoms which may become available as prognostic signs of the approach of death.

Death (*cessation of function*) beginning at the heart—sudden—*syncope*, gradual—*asthenia*.

Death, beginning at the breathing apparatus—*asphyxia*, or *apnœa*; beginning at the brain—*coma*; beginning at the medulla—*paralysis*; beginning in the blood—*necræmia*.

Death by *cardiac syncope*, or sudden cessation of the heart's action, may occur in two ways:

First. By this muscle losing its irritability so that it ceases to contract.

Second. By its being affected with tonic spasm, in which it remains rigidly contracted, losing its usual alternation of relaxation.

In both these cases death is quite instantaneous, the subject suddenly turning pale, falling back, or dropping down and expiring with one gasp. In the first case both sides of the heart are found, after death, distended with blood; and if the examination were made soon after death the blood in the left cavities would be found to be florid. In the second case, the heart appears small and very hard; the ventricles (or at least the left) are found so firmly contracted that the cavity is almost obliterated, and contains no blood; the muscle is very firm; but after maceration in water, or even without it, in two or three days, the wall of the ventricles yield to the pressure of the fingers and the cavities may be restored to their normal dimensions.

This state of the heart was long mistaken for concentric hypertrophy until Cruvilhier and Dr. G. Budd pointed out its true nature.

Although syncope by loss of irritability (paralysis), and syncope by spasm, appear to be opposite states, yet they arise from somewhat similar causes. In animals wounds of the heart are followed sometimes by the one, sometimes by the other.

Death by *shock*, as from tearing off a limb, a violent blow on the epigastrium, crushing the brain or spinal marrow, is sometimes caused by spasm, although more frequently by paralysis of the heart. In sudden death from drinking a quantity of raw spirits, or of very cold water when the body is heated, the heart has been found contracted.

Syncope by loss of irritability of the heart is the more common case; and, besides, in the examples above given, it may be induced by the operation of large doses of certain poisons called sedative—such as the upas antier, infusion of tobacco, aconite, and digitalis; and in combination with other effects, by large doses of hydrocyanic acid, strychnia, oxalic acid, arsenic, preparations of baryta, and various animal poisons.

Mr. Blake found the power of the heart destroyed by solutions of various saline matters injected into the veins, especially salts of potass, magnesia, zinc, copper, lime baryta, and lead; but these results do not correspond with what we find of the operation of these substances when introduced into the stomach.

The diseases in which death by cardiac syncope sometimes takes place are: those of the heart, (but more rarely than is commonly supposed) hemorrhagic apoplexy, attended with much injury to the substance of the brain; anæmia, and adynamic fevers. As it occurs suddenly there can scarcely be said to be symptoms; but sometimes an approach to it has been manifested in previous attacks of common syncope or faintness, in which the action of the heart becomes weak, irregular, and intermittent; and the partial failure of the circulation is evinced in the paleness of the face, lips, and general surface, often with cold perspiration; the failure of the sensorial functions, loss of consciousness and volition more or less complete, sometimes attended with various convulsive movements—the eyes turning up or becoming fixed or glazed, and the pupils dilated. The recovery from this faintness is often attended with shivering, vomiting, sighing, gasping, yawning, and various distressing sensations of noises in the head; flashes in the eyes, palpitation, depression of spirits, etc., whilst the pulse regains its strength and regularity, and the color and warmth return to the surface. After this may ensue a reaction, like that which occurs after great losses of blood.

Death by the *gradual cessation of the heart's action* has been termed *asthenia*. This is the mode of termination of many diseases, especially those which destroy life by exhausting the strength, without any direct interference with the more vital functions.

Thus long continued fevers, delirium tremens, gastritis enteritis, peritonitis, sometimes tetanus, hydrophobia, and inflammation of the brain, hemorrhages, and various discharges of animal fluids—such as diarrhœa, diabetes, extensive ulcers, or abscesses, etc., proving gradually fatal—inanition from want of food, and several others, reduce the power of the heart, and with it the functions of the whole body, to a lower and lower state, until at length the heart flutters and dies.

The symptoms of the approach of death by *asthenia* are: increasing weakness of body and mind, whilst there may be no marked derangement of any particular function of either; increased frequency and diminished strength of the pulse; the face, lips, and other parts of the surface gradually become paler and paler, or of a death-like sallowness; the extremities lose their warmth, and often become œdematous; the appetite fails; the tongue becomes sometimes dry and brown, sometimes furred, and the mouth aphous; the excretions first are imperfectly voided; then the sphincters lose their power, (the weakness reaching their excito-motory function) and involuntary discharges of urine and fæces may take place; and this state of *sinking* in a few hours terminates in death.

The symptoms above described are those of progressive loss of power, not confined to the heart, but through its failure, and that of the circulation of the blood, of which it is the chief instrument, becoming extended throughout the whole frame.

But with this general debility there are often symptoms of partial excitement and reaction, which sometimes mark the sinking state.

Thus a febrile excitement of a hectic kind may come on, giving slight temporary strength to the pulse, flush to the cheek, life to the eye, and a sort of

flickering reanimation to the whole frame. Sometimes the excitement is more partial, affecting the brain as with delirium; or the medulla, as with *subsultus tendidum* hiccough, or other slight convulsion; or the stomach, as with vomiting, etc.

Or in the sinking state, some functions may become obscured before others, in consequence of congestions, effusions, or even low inflammations occurring in the capillaries of some organs, as the powers of general circulation fail; thus the death by asthenia may become somewhat complicated with coma from congestion or effusion within the head; or with dyspnœa from congestion in the lungs; or somewhat similar symptoms may arise from the early failure of the excreting organs, and the retention of the excrementitious matter in the blood.

Asphyxia, or apnœa, has already been noticed as an element of disease, and its nature and symptoms were then examined; we here advert to it as another mode of death.

By *death beginning at the breathing apparatus*. I mean that in which the function of this apparatus is the *first* to fail. In this respect it is distinguished from death beginning at the brain, or medulla, which destroys by *secondarily* suspending the function of breathing, and the distinction is useful for practical purposes as serving to direct attention to the most suffering organ. Death by simple apnœa takes place in diseases of the lungs and air-tubes, in which the entrance of air to the lungs is impeded by effusion into the air cells or tubes; or by pressure upon them, as in bronchitis, pneumonia, pleurisy, etc., by obstruction to the passage of air through the trachea or larynx, as in croup, laryngitis, and tumors or spasm constricting these tubes, or in circumstances mechanically excluding the passage of air by the mouth and nostrils, as in smothering, struggling, hanging and drowning.

The symptoms of the approach of this mode of death are: increasing feeling of suffocation, or want of breath, which becomes most distressing and agonizing as the want is unappeased; the efforts at respiration are made in a hurried and forced manner; the face, neck, and other parts of the surface become congested in proportion to the violence of these efforts; and as these efforts are unsuccessful, the color of the congested parts changes from red to purple, and from purple to livid. The influence of this congestion and partial circulation of black blood is soon evident on the functions, causing stupor, reduction of temperature, weak and irregular pulse, rapid reduction of muscular strength, and consequently of the efforts to breathe. Hence the dark hue of the face may be changed to paleness; but the lividity of the lips, tongue, nails, and other colored parts, remain until death. In cases of speedy death from violence, as hanging, drowning, etc, or from a sudden attack of laryngitis, or spasm, the respiratory efforts are more vigorous, and the congestion and lividity of the surface are greater, and may remain until death. But in the slower asphyxia, from diseases of the lungs and air-tubes, the interruption to the breathing is less complete, the efforts are less violent, the congestion of the surface is less marked, and the functions more gradually failing together, the symptoms peculiar to apnœa are less decided.

Hence, too, as imperfectly arterialized blood is circulated throughout the body,

it may cause peculiar symptoms, such as stupor and low delirium, partial paralysis, vomiting, relaxation of the sphincters, and other symptoms of sinking.

This exemplifies what has been before remarked, that the distinctness of each mode of death generally depends on its speedy supervention.

As prognostic signs, the symptoms of apnœa are more hopeless in proportion as they are conjoined with those of debility. The nature of the obstruction to the respiration must of necessity be taken into account; and if this be not complete and irremovable, the congestion and lividity of the surface are not fatal signs, so long as the strength of the breathing apparatus and of the heart does not decline. As this becomes exhausted, the means of recovery are lost.

Death by coma, or beginning at the brain, is caused by various influences which primarily destroy the functions of the superior masses of the nervous system. The chief of these circumstances are obstruction to the circulation through the brain by pressure, (as of effused blood, pus, lymph, or serum, or of distended vessels in apoplexy, a depressed portion of bone in fractured skull, etc., by coagula within the vessels in anæmia, and by various narcotic poisons, such as opium, alcohol in large quantities, carbonic acid, or ether vapor inhaled, and sometimes the excrementitious matter of urine and of bile in the blood.)

The symptoms of *coma* are those of interrupted function of the brain, insensibility and suspension of voluntary motion, the heart's action not being materially impaired. These may come on in different modes. In apoplexy and injuries of the head, they may supervene suddenly and the patient at once becomes powerless and senseless, the pulse continues pretty good, although slower and fuller than usual, or it may be frequent from mere sympathy. In other cases the stupor comes on gradually and the senses and mental powers are often irregularly obscured, causing dimness of sight, appearances of clouds or cobwebs before the eyes, *muscæ volitantes*, various imperfections of hearing, with noises *tinnitus aurium*, numbness and tingling sensations in the limbs, loss of memory, confusion of ideas, hallucinations, low delirium alternated with stupor (typhomania,) continued somnolency, etc.

Partial paralysis often accompanies progressively advancing coma—sometimes of the lower extremities (*paraplegia*,) more commonly of one side, (*hemiplegia*.) In the operation of narcotics, the state of coma is commonly preceded by symptoms of cerebral excitement, manifest in the usual signs of intoxication and delirium, which vary in the case of different poisons. For these particulars I must refer to works on toxicology and materia medica.

In conjunction with these symptoms, referable to the sensorial and voluntary functions, there are often symptoms of various affections of the excito-motory system of the medulla; at first they are those of excitement, such as convulsions, vomiting, hiccup, contracted pupil, etc. Thus, the coma of apoplexy and sometimes the stupor of narcotism are occasionally accompanied by convulsions, general or local, and I shall elsewhere endeavor to explain how these opposite effects on different parts of the nervous centers may arise from the same cause. But in cases of more extreme coma, the excito-motory power of involuntary motions becomes impaired, the breathing is stertorous and imperfect, the actions of coughing and expectoration are not easily excited, deglutition be-

comes impossible, the pupils are dilated, emetics fail to excite vomiting, the sphincters are relaxed and involuntary discharges of urine and fæces take place.

It is a question whether the functions of the brain can become completely suspended for any length of time without those of the medulla suffering also. During common sleep there is not complete insensibility or suspension of volition, for movements are then made in consequence of unpleasant sensations, yet without the sleep being broken. It is probable that in trance of nervous subjects, of hysteric coma, neither sensation nor volition is entirely abolished, but it is difficult to ascertain the truth in these cases, for the patients often deceive themselves as well as others. But in the heavy sleep of intoxication and in the stupor of coma, in which pinching scarcely excites any evidence of consciousness, the functions of the medulla seem to be also impaired, for the breathing is slow and stertorous, and irritations of the nose and eyes less readily than usual excite the motions of sneezing and winking.

It is in proportion as these functions are impaired that coma becomes dangerous, and it is because they are not impaired, (and in some instances are distinctly augmented as manifest by the sighing and spasmodic twitching that occur) in nervous or hysteric stupor, that this is unattended with danger. It appears probable, however, that coma, when complete, may cause death by the abolition of sensation only, and if so, we are warranted in distinguishing between death by coma and death by paralysis of the medulla. Although the movements of breathing are ordinarily independent of consciousness or will, yet such is not the case of the extraordinary movements which commonly take place in a deep breath or sighing, when the ordinary action is impeded by posture, fatigue, exhaustion, or any other debilitating cause.

Under these circumstances, when the function of the brain is unimpaired, the feeling of want of breath arouses a succession of voluntary efforts which are manifest in suspirious breathing, and which are the cause of sleeplessness in delirium tremens, and other states of exhaustion. But when sensibility and voluntary power are wholly suspended, these supplementary efforts are not made; for want of them, the respiration is insufficiently performed, and the lungs and air-tubes gradually become congested; this congestion and the resulting secretion further impair the involuntary part of the process of respiration, and thus without any indications of paralysis of the medulla, the signs and effects of apnoea are slowly superinduced on the state of coma.

Under such circumstances, it is of great importance to place the patient in such postures or other circumstances as shall most favor the movements of breathing and remove pulmonary congestion by the proper remedies, should it arise.

Snoring arises from a relaxed state of the soft palate, and is of little moment so long as the movements of breathing are sufficiently strong and frequent; but when the respiratory powers are impaired, stertor is not only a sign but a cause of obstruction to the passage of the air, and should be prevented as much as possible by changing the posture of the patient.

The most dangerous kinds of coma, then, are those attended with symptoms of impaired excito-motory function, or those so profound and prolonged as to

deprive the respiration of all aid from voluntary efforts, the signs of danger being apparent especially in connection with the respiration. In apoplexy, contraction of the pupil of one or both eyes is of very unfavorable import, because it indicates an excitement of the upper portion of the medulla, whilst the brain is oppressed; such a combination can only proceed from the partial operation of a clot in the substance of nervous centers, compressing one part and irritating another.

That death should ensue from injured function of the *medulla oblongata* and *spinalis* is quite intelligible, when it is considered that on this portion of the nervous system the ordinary act of breathing depends.

This mode of death, like the last, is by apnœa, but the death or failure of function here begins with the nervous link of the chain of actions constituting the process of respiration; whereas, in simple apnœa, it commences with the mechanism of the breathing apparatus. This death may be called death by paralysis, and, as in other cases of paralysis of the excito-motory functions, it may be caused by suspended function, either of the nervous center (*medulla oblongata*) or of the different nerves (paravagus and sympathetic), or of the afferent nerves (phrenic, intercostals, and spinal accessory) which complete the respiratory circle.

Of influences which destroy the function of the *medulla oblongata* itself may be mentioned, hemorrhagic effusion into its substance or upon it, fractures of the base of the skull, and any very considerable pressure on the whole encephalon.

I have witnessed several deaths from encephalic hemorrhage in which the stroke was not attended with loss of consciousness, and would not therefore be termed apoplectic, but paralytic, with loss of power of articulation, hemiplegia and laborious and stertorous breathing, which was obviously aided by voluntary efforts or struggles, the patient, by gesticulations and violent gaspings, showing his consciousness of failing respiration. In two such cases, in addition to some hemorrhage in one hemisphere of the brain, there was a clot in the pons varolii.

These cases establish the truth of the distinction between the death by coma and death by paralysis.

Some poisons also seem to affect the medulla more immediately than the brain. Thus, animals poisoned with essential oil of bitter almonds, conia, belladonna, and perhaps some other poisons, are affected with gaspings and other signs of impaired functions of respiration before they lose consciousness; according to the experiments of Sir B. Brodie and others, they die simply from suspension of respiration, and if this process be artificially maintained for a time, the animals may sometimes recover from the effects of the poison. The same remark, in some degree, applies to opium and its active principle, but less distinctly, for these early induce coma, and often impair the action of the heart also. Experiments are wanting to establish the elementary operation of this and other poisons as the functions are now viewed by physiologists. In some cases in which I have seen animals die from rapid hemorrhage, the respiration has ceased for some seconds before the heart's action, and from the peculiarly labored state of the breathing, and late retention of consciousness, I conclude

that death from hemorrhage, in some instances at least, is due to suspension of the functions of the medulla.

The division of the eighth nerves in the necks of animals illustrates one mode of inducing death by paralysis. These are the chief incident or afferent nerves from the lungs to the medulla, transmitting the impressions which excite the motory nerves of the muscles of respiration. When they are divided the breathing is imperfectly performed, and expectoration and cough cannot take place; apnoea, therefore, gradually follows. Although we have not a result to the same amount exhibited in disease, yet we have an approach to it in the dyspnoea, sometimes constant, sometimes in paroxysms, caused by pressure of tumors on these nerves, or by malignant disease involving them.

The third mode in which the nervous link of respiration may be broken by injury to the excito-motory column of the spinal marrow or its branches, is exemplified in the case of breaking the neck, or dislocation of the upper cervical vertebræ.

Pithing an animal effects the same thing. All parts supplied by nerves from below the injured portion of the medulla become paralyzed, and therefore their motions cease.

Disease in the vertebræ, in the spinal cord, or in its membranes, have been followed by similar results; and the functions of the several nerves of respiration are illustrated by these cases. I have known disease affecting at the upper cervical vertebræ cause less of motion in all parts below the neck except the diaphragm, which is supplied by the phrenic nerve, and through which for awhile respiration was wholly carried on. The patient afterward gained power in the spinal accessory nerve, by which he was enabled to elevate the upper part of the chest and subsequently some power was for a time restored to the superior intercostal nerves and muscles. In other cases diseases of the spinal cord creep from below upwards, beginning with paralysis of the lower extremities and pelvis, then reaching the dorsal spine paralyzing the intercostals and at last reaching the neck.

The advance or retrogression of all these symptoms are of great importance in the progress of such diseases. Besides the respiratory functions, the functions connected with excretion are dependent on the integrity of the spinal cord; they fail when it is seriously injured, and this failure may furnish symptoms of death beginning at the spinal cord. When the cord is injured only at a point, and remaining healthy above and below it, the injury may merely intercept the transmission of sensation upwards, or of volition downward beyond the injured point. Hence, there may be loss of sensation, or of voluntary motion, or of both, in the lower portions of the body. If this reach the urinary apparatus, the power of spontaneously urinating is lost. But the reflex or independent excito-motory influence of the spinal cord remains, hence the sphincters and the bladder retain their power, and when the catheter is introduced into the bladder, it contracts as usual, aided by the voluntary power remaining in the diaphragm and abdominal muscles. We have before noticed, that under these circumstances the muscles of the lower extremities retain and accumulate their irritability, and although the will has no command over them yet tickling, or even touching

them, may excite them to contract with unwonted energy. The exercise thus kept up seems to be sufficient to preserve their nutrition, for they do not waste away.

But it is quite different if the spinal cord be extensively injured as by crushing, softening, or a considerable effusion of blood or pus into its sheath. Its function then ceases, not only as a communicator of sensation and voluntary power to the lower parts of the body, but also as a source of that excito-motory power by which the sphincters contract and the urinary bladder evacuates its contents. Hence there is constant dribbling of urine, yet without the power completely to empty the bladder. The *fæces* are discharged unconsciously, and without the power of control.

The limbs are not only insensible and powerless to the will, but their muscles can no longer be excited by tickling; they lose all motion and the blood-vessels lose that influence which the nerves of all orders exercise upon them. It is not surprising, under such circumstances, that the death which has begun in the spinal cord should spread to the parts whose functions it can no longer maintain.

The urine, imperfectly discharged, putrifies, and causes inflammation of the bladder which may gradually extend to and stop the functions of the kidneys.

The intestines become distended and obstructed with gas and pent-up *fæces*. The limbs lose their proper circulation for want of motion, and nervous influence in their muscles and vessels, their nutrition fails, they become *œdematous*, partially inflamed, livid, and run into gangrene, and all these changes are so many signs of the progress of death which has begun in the spinal cord.

From the remarkable effect of cold and some poisons on some of the lower animals, inducing paralysis of the hinder extremities, it is probable that these agents are capable of especially injuring the function of the spinal cord, beginning with the remote part. Has the gangrene of the lower extremities, sometimes induced by the use of ergotted corn, any connection with an injured function of the spinal cord?

Death of the medulla supervenes on that, beginning with coma and *asthenia* in many cases; and as its involuntary excito-motory function is the guardian of many processes essential to life, the symptoms connected with it are of great importance in connection with prognosis.

NECRÆMIA, OR DEATH BEGINNING WITH THE BLOOD.

are terms which I venture to give to those fatal cases in which the chief and most remarkable changes are exhibited by the blood. In typhoid fevers and others of the malignant or pestilential kind, none of the solids of the body constantly exhibit such an early change of function or of structure as would warrant us in tracing disease and death to them. It is true that the functions of many solids are impaired—the muscular and nervous systems, secretions, digestion, assimilation and nutrition, all suffer, but the very universality of the affection seems itself to point to some cause more general than can be found in any individual function; and such a cause may be found in the blood.

The blood, at an early period of these diseases, when they occur in, their

worst form, exhibit changes which show that disorder begins with it, and this disorder may reach to a fatal degree.

The appearance of petechæ, and vesicles on the external surface, the occurrence of more extensive hemorrhages in internal parts, the general fluidity of the blood, and frequently its unusually dark or otherwise altered aspect, its poisonous properties as exhibited in its deleterious operation on other animals, and its proneness to pass into decomposition, point out the blood as the first seat of disorder, and by the failure of its natural properties and functions as the vivifier of all structure and function, it is plainly the medium by which death begins in the body.

How far the change in the blood is in its structure and vital properties, or in its chemical composition, further research alone can determine; the vivifying function of the blood depends on all these combined, and it is this function which obviously fails. Hence the complete adynamia or general prostration of all living powers, which occurs when this cause of death is most powerful.

The blood, the natural source of life to the whole body, is itself dead and spreads death instead of life.

Almost simultaneously the heart loses its power, the pulse becoming very weak, frequent and unsteady; the vessels lose their tone, especially the capillaries of the most vascular organs, and congestion occurs to a great amount; the brain becomes inactive, and stupor ensues; the medulla is torpid and the powers of respiration and excretion are imperfect; voluntary motion is almost suspended, secretions fail, molecular nutrition ceases and at a rate much more early than in other modes of death, *molecular* death follows close on *somatic* death—that is, structures die and begin to run into decomposition as soon as the pulse and breath have ceased; nay, a partial change of this kind may even precede the death of the whole body; and the fœted aphthous patches in the throat, the offensive colliquative diarrhœa of persons in the last stages of various fatal diseases; parts running into gangrène as in the carbuncle of plague, the sphacelous throat of malignant scarlatina, and the sloughy sores of the worst forms of typhus, and in the large intestines in dysentery, and the putrid odor exhaled even before death by the bodies of those who are the victims of similar pestilential diseases—are so many proofs of the early triumph of dead over vital chemistry.

We have hitherto represented an extreme case; but there are many lower degrees in which disease begins with the blood, and various disturbances and reactions result. The causes which appear thus primarily to affect the blood are especially endemic, epidemic and infectious influences called poisons, certain animal and vegetable poisons, as that of the most venomous reptiles and fungi, and probably some mineral poisons, as sulphuretted hydrogen, selenium, and, in part of its operation, arsenic. The direct influence of all these agents is depressing, and when they operate in large quantities, or in a concentrated form, the vital powers fall quickly into a state of adynamia or prostration, which soon ends in death, as we have already described it, the blood first and most constantly manifesting a change. But if the noxious influence is in smaller quantity, or more diluted, the vital powers react against it in various

ways, the object of which can often be plainly discovered to be its expulsion from the system. The shivering hot stage and sweating terminations of paroxysms of intermittent fever, the similar but less marked sense of febrile movement which occur in slight forms of remittent and continued fevers; the profuse and violent fluxes of the stomach and intestines in cholera dysentery, and epidemic diarrhœa, and the similar discharges induced by poisonous ingesta are instances of the operation of vital reaction attempting the expulsion of the noxious matter, and of that part of the animal fluids that had been corrupted by it.

But these struggles, in many instances constitute serious diseases in which life may be compromised by the violent and exhausting effect of the reaction, as much as by the prostrating influence of the cause of the disease, in these more complex affections, individual organs may especially suffer in different cases and the danger and cause of death may be less in the changed condition of the blood than in the affections of particular organs, or the exhaustion consequent upon them, which destroy, not by necraemia, but by coma, asphixia, or asthenia, modes of death already considered.

The injurious effect of these poisons may be still more completely prevented when their quantity is small and the living powers are vigorous. A diarrhœa, a profuse sweat or a free flow of urine sometimes carries off the commencing disease. The intestines, the skin, and the kidneys, appear to be the proper emunctories through which morbid matter is expelled. The peculiar fetor of the secretions from the bowels in typhoid fever, the beneficial influence of moderate diarrhœa, which removes them in the early stage of fever, and appearance of a foul, fibrinous matter, (typhus material of German writers,) in the intestinal glands, seem to be examples of the elimination of morbid matter. This was exemplified in the case of an epidemic erysipelatous angina which attacked several patients of the University College Hospital, London, in the spring of 1843. Out of about a dozen cases in which persons affected with various diseases were attacked three died from the erysipelas extending to the larynx, and in all these the kidneys were granular and the urine albuminous.

The follicular inflammation, ulceration and sloughing of the intestines in fever may arise from the excessive irritation of the follicles in the exercise of this eliminating function. Again, with regard to the kidneys' granular degeneration, which impairs their function and power of elimination renders the body peculiarly liable to contract epidemic and infectious diseases and to succumb under them. This renders the prognosis unusually unfavorable in these cases. The same remark extends, and for the same reasons, to persons who have been habitually intemperate. On the other hand those whose kidneys are naturally active more effectually resist disease, and more readily throw off its effects. In like manner it is well known that persons with a naturally dry skin do not so readily get rid of a fever as those in whom perspiration is readily excited. Besides the influences already mentioned as first attacking the blood and in extreme cases injuring its composition and causing its death, there are others originating in the body itself.

Thus the processes of gangrene and suppuration sometimes infect the blood

with a septic poison and cause death in a manner and with symptoms like those of the poisons above noticed. The sudden suppression of the excretions of urine or bile from disease, or under the influence of any severe shock, also seem in some cases to operate by injuring the properties of the blood, whilst in other instances it distinctly induces coma or asthenia. We have before adverted to retention of excrementitious matter as a cause of *cachæmia* or depraved state of the blood, so we now find that in an extreme degree it may cause *necræmia* or death of the blood. The symptoms which should make us apprehend the approach of death by *necræmia*, may be gathered from the preceding descriptions. Those symptoms generally called typhoid, putrid or malignant, belong especially to this class of deadly influences. For example: A congested appearance of the whole surface, the color being dusky or livid, and extending to the conjunctiva, tongue and fauces, various slight exanthematous or papular patches on the skin, often with petechiæ, more extensive hemorrhages in form of ecchymoses, or oozing of thin bloody fluid from the gums, nostrils and sometimes from other passages, extreme prostration of the strength, with an obtuse state of all the senses and mental faculties, sometimes combined with delirium and twitching of the limbs, half-closed eyes and dilated pupils; a very frequent, weak and soft pulse; frequent and unequal respiration, no appetite, intense thirst, a dry, brown tongue, with dark sordes on the lips and teeth; a progressive fall of temperature, which may have been elevated at first; often cold, clammy and fetid perspiration, hiccup, subsultus tendinum; scanty, offensive urine, involuntary discharges.

Some diseases of the same class are modified by peculiar effects:

Thus, in malignant cholera, excessive discharges of serum, by vomiting and by stool, reduce the blood to such a spissitude, that it will no longer circulate through the vessels; the pulse ceases and the surface becomes blue and cold from the darkness and stagnation of the blood, and shrunk from the exhaustion of its fluids. In yellow fever altered blood is ejected from the stomach in the form of what is called black vomit. But to pursue the subject into further details belongs rather to the department of special pathology. It has been before mentioned, that the complete distinction of these different modes of death, is almost exclusively confined to cases of speedy or sudden death. In the slower dissolution, by which diseases generally prove fatal, all functions and structures are more or less involved, and the life in all is dwindled down to a slight thread, so slight that where it breaks in one, others scarcely retain it long enough to enable us to say that death begins distinctly in any part. A brief sketch of some of the most common symptoms influencing our prognosis, will not, perhaps, be here without value, much may be inferred from the general aspect of the patient. Constant change of the position, unimportant in the beginning of acute diseases, becomes alarming when it persists for any time. Lying continually in the same position, as constant dorsal decubitus, in low forms of disease, is a very bad symptom.

Inability to lie down, which sometimes happens in thoracic disease, is equally sinister. Jactitation succeeding to quietude, in the latter stage of acute disorders, is generally a mortal sign, especially when accompanied by an attempt to

throw aside the bed clothes, and ineffectual attempts to rise. Progressive emaciation in acute affection is of little importance, but in chronic disorders it should lead us to anticipate a fatal termination in proportion to its rapidity. General œdema is an extremely bad augury.

The occurrence of sloughs in various parts of the body, in both chronic and acute disorders, is a very bad sign. The physiognomy should be especially studied in reference to prognosis. When the natural expression of the countenance is preserved, it is always of favorable import. Great alteration in the features in the commencement of an acute disorder, ought to make us fear, about the fifth or ninth day, the supervention of low symptoms.

In the advanced stage of all diseases, a sudden and great alteration in the physiognomy announces approaching dissolution. When it occurs at a period where a fatal termination is not to be anticipated, it should lead us to suspect the development of some acute affection, the enfeebled state of the patient not admitting of its exhibiting the ordinary local symptoms, a sudden aggravation of the general symptoms being the only indication. It generally announces death in less than three days.

This change of countenance must not be confounded with the pallor which marks the commencement of convalescence in fever, etc., the accompanying phenomena serve to distinguish them. Subsultus, trembling and rigidity always denote danger. Carphologia, epileptic and tetanic convulsions, rigidity of the limbs, are mortal signs in the advanced stages of fever.

Another invariably fatal symptom, according to Chomel, is the automatic movement by which the patient seeks to approach his hand to his body while the physician is feeling his pulse. Aphonia is a bad sign in acute disorders.

The intensity of pain by no means in general indicates the amount of danger. *Cæteris paribus*. Deep seated pain is more unfavorable than that which is superficial; and that which is fixed more so than that which is variable. The sudden cessation of pain in inflammation, joined to great alteration in the features, indicates approaching death.

According to Chomel suppuration not gangrene will be found under such circumstances, on examination. Deafness is a sympathetic phenomenon occurring in many acute diseases, and is always serious.

In the mortality of typhoid fever, if a comparison be made of those who suffered from deafness in the course of the disease and those who did not, the deaths among the former will be found as two to one among the latter. Hope and cheerfulness are generally good signs.

Distrust and despair are very unfavorable symptoms. It is rarely that patients who have the persuasion that they will die, recover, unless they are hypochondriacs. Total indifference is a bad sign. In several chronic disorders the tranquil security enjoyed by patients does not demonstrate the gravity of the prognosis.

The prognostic signs furnished by delirium are connected with its intensity, persistence, and the conditions under which it occurs. Wild delirium soon passing off is not serious, permanent delirium always is. Many persons, of all ages, are liable to delirium whenever they are attacked with ephemeral fever,

or an angina, it is only necessary to be aware of the idiosyncrasy in order to appreciate the value of the symptom.

Prolonged sleep in the course of fever is not dangerous if the patient is readily aroused. Coma is alarming and nearly always mortal when intense and permanent.

The sudden occurrence of a voracious appetite announces speedy death. Chomel has frequently met with this symptom in pneumonia, death soon took place. Dysphagia is generally a fatal symptom in cerebral and acute disorders. The signs which the respiration furnishes prognosis are important and rarely deceive. A hurried respiration indicates great danger. When the number of respirations amount to fifty in the minute, it may be generally stated that death will soon follow. The tracheal rattle and stertorous breathing are usually precursors of dissolution, especially when they occur towards the latter stages of cerebral disease.

In inflammation of the lungs stertor is not alarming so long as expectoration takes place. Paroxysmal is less dangerous than permanent dyspnœa. Hiccough is a very unfavorable symptom in the latter stages of disease unless it is accompanied by a notable amendment in the other symptoms.

A pulse of moderate frequency and force is favorable. Considerable frequency of pulse indicates something serious. A pulse of 150 in an adult should lead to a very unfavorable prognosis. If at an advanced period of any affection the pulse becomes irregular or intermittent, or ceases, death is near.

Augmentation of the heat of the body is of bad import, especially when dry. Sudden chilliness of the extremities and rest of the body occurs usually a short time previous to dissolution.

Chills at an advanced period of the disease, should lead to the suspicion of the formation of pus, or of its resorption, according to circumstances.

Abundant sweating towards the close of a disease is a favorable sign. Cold sweats at the same period are generally unfavorable.

Hemorrhages at the beginning indicate usually that the disorder will be serious. Towards the close they are either favorable or unfavorable. Epistaxis, the hemorrhoidal flux, and menorrhagia, are generally favorable signs in those who are liable to them. Hemorrhages from the lungs and intestines are usually mortal, those from the urinary organs nearly constantly fatal.

The degree of strength which the patient possesses is of great importance in forming a prognosis, considerable diminution or perversion is always dangerous, especially in the early stage of the disease.

PROPHYLACTICS AND HYGIENICS,

Prophylactis is the guarding against a particular disease, and hygienics relate to the prevention of diseases in general, or to the preservation of health. The former is connected with special rather than with general pathology, and it should be founded on a due knowledge of the causes, nature and tendencies of disease, and of the various means in diet, regimen, residence and medicine, which are capable of removing the causes of disease, or of preventing or counteracting their operation. Hygiene consist in the knowledge and application of those means by which the structure and hygienic functions of the body may be kept in that normal state which conduces to their continued welfare—that is in *health*. We have found that both structures and functions have the elements of disease in themselves, when any thing disturbs their due proportion.

It will be sufficient in this place to consider briefly the chief corresponding circumstances which promote the maintenance of health, and these may be arranged under the following heads: *Food, Clothing, Temperature, Air, Exercise, Mental Occupation, Sleep, Excretion*. The nature of this work precludes many details on these important topics, and the following is intended as a mere outline in conformity with the principles previously explained.

The object of hygiene is the preservation of health and the prevention of disease, and hygienics include everything which tends to accomplish these ends.

Although hygiene has been called the medicine of healthy individuals, it is still applicable and even indispensable to invalids, and is often of more service to them than medicine itself, for whilst the efficacy of many remedies may be doubtful, the propriety of hygienic measures is universally admitted.

By their aid alone, without a resort to the *materia medica*, the majority of acute disorders will terminate favorably, without them our best directed efforts will often prove unavailing. We frequently see patients in bad hygienic conditions perish in spite of able physicians, and an abundance of remedies, and the mildest diseases converted into mortal ones from similar reasons.

The crowding of patients into narrow, ill-ventilated places, the contamination of the air, the absence of cleanliness, the want of suitable clothing, exposure to cold and wet, errors of diet, mental depression, fatigue, collectively invariably produce terrible effects, whilst in a large number of acute affections of the severest kind, recovery occurs without a resort to any active remedy, merely under general hygienic measures.

FOOD.

The purpose of food being the supply of materials which, when prepared by the process of digestion, shall repair the waste of the body and maintain its

temperature, it is obvious that this purpose will be best fulfilled when the materials supplied are of such quality and quantity and so administered as to suit respectively the powers of digestion and the wants of the system for nourishment and warmth, in other words food should be digestible, nutritious and califacient, and the articles which duly comprise all these qualities will be the most wholesome food. The importance of a due combination of the chief alimentary principles, albumen, oil, sugar or starch, with water as their diluent, has been before pointed out, and the expediency of preferring such materials as comprise these in the best quality or condition may also be inferred from preceding observations. It may not be superfluous to exemplify these points further by a few comments on common articles of diet.

Wheaten bread comprehends the albuminous (gluten) and the amylaceous principle, and only needs the addition of butter to complete the requisite combination for moderate nutrition. The goodness of bread depends not only on the character of the grain from which the flour is obtained, but also on the mode and degree of its fermentation and baking. If fermented with leaven instead of yeast, or if even over fermented, acetic acid is generated and the bread is sour; and this is the common fault of bread in large towns where the supply of yeast is insufficient.

This evil is avoided in the unfermented bread which is rendered porous by an effervescence of carbonic acid gas, caused by an admixture of carbonate of soda with the flour, and hydrochloric acid with the water of which the bread is made; where well prepared such bread is very sweet and free from acidity, but unless carefully prepared is liable to be heavy, and, like imperfectly fermented bread, is unfit for mastication.

Bread insufficiently baked is glutinous and indigestible, and much of the same objection applies to quite new bread which has not dispersed its moisture. These defects may in a great measure be remedied by toasting the bread in thin slices, which has also the advantage of dispersing much of the acid from the sour bread. Very white bread is objectionable as being less nutritious (having less gluten) and more constipating than that made with less refined flour; but the coarse material commonly sold as Graham bread errs to an opposite extreme in containing a bran so coarse as to be irritating to many stomachs.

Good country bread fermented with yeast, and well baked, presents the kind most generally wholesome.

Meat comprises the albuminous, oily and gelatinous principles, besides creatine and other soluble extractive matters, which are probably nutritious. It requires combination with vegetables or bread to make it suitable to the palate and stomach. The object of keeping and cooking meat is to make it so tender as to be easily softened by the gastric juice and all processes which interfere with or go beyond this result, render meat less wholesome. Thus salting or pickling, keeping until it becomes tainted, or hardening it by over-cooking or fast boiling, which corrugates and toughens the fibre, are so many means of spoiling the meat for the purposes of digestion, and rendering much of its nutriment unavailable. The flesh of young adult animals presents the greatest amount of fibrinous nutriment; that of younger animals contain more gelatine

and fat, and that of older age is tough from the prevalence of fibrous textures, which, being gelatinous, are more serviceable for soups.

The kinds of animal food vary much in their composition, even when the lean parts only are selected. Thus beef and pork contain a large proportion of fat, mutton somewhat less, veal still less, and in the flesh of fowl, game and white fish there is only a small amount. This affords an explanation of the fact that the latter articles are the best suited to persons of weak stomachs. But the proportion of creatine and colored extractive, doubtless also determines the quality of the food; thus the flesh of hare, which contains much, is more heating than that of chicken and whiting, or sole, which may be taken as the representatives of the mildest form of solid animal nourishment.

Soups and broths, when deprived of excess of fat, are very useful articles of auxiliary nourishment in combination with solid food, but they are not substantial enough to supply a meal to a healthy person.

Eggs and milk, respectively, separately or combined, form light and nutritious articles of animal diet. They are rendered easier of digestion by being heated to about 180° , by which part of the albumen is slightly coagulated.

Both eggs and milk contain a considerable amount of oil, which causes them, when taken too freely, to disagree with persons of bilious habit. So, likewise, they are prone to speedy decay, and lose much of their wholesome nature, even in a day or two. In like manner, fresh butter is an excellent adjunct to bread and vegetable articles, but speedily becomes rancid and loses its salubrious properties. Cheese is a low form of protein compound, which requires energetic digestive and assimilating powers to raise it to the higher standard of the material of the plasma of the blood; it is therefore wholly unfit for delicate persons and those of weak digestion. Oleraceous and succulent vegetables and fruit are fit adjuncts to the more nutritious articles of food, which they serve to dilute; and by the sub-acid and extractive matter which they contain they promote the secretions and thus tend to purify and cool the blood. In most instances they require to be thoroughly cooked to give them the state of softness fit for the digestive process.

The choice of food and the arrangement of hours for different meals must vary much according to the habit and necessary occupations, as well as the strength and tastes of individuals, but the following plan of diet, with some variations, will be found well suited to the majority of healthy adults.

Breakfast, at from 8 to 9 A. M., of bread or dry toast, with a moderate quantity of butter. One or two new laid eggs, boiled three minutes and a half, or a little cold chicken or game, or even a mutton chop, may be added for those who use much bodily exertion. Beverage, one breakfast cupful of clear strong infusion of coffee with scalded milk. Cocoa, deprived of fat, or thin chocolate, with milk, may be substituted.

Dinner, at from 12 to 2 P. M. . Soup, wholesome fresh meat and vegetables, well but plainly cooked, served hot, carefully proportioned, properly masticated, varied from day to day with simple additions of fish, and moderate quantities of farinaceous or fruit puddings.

Highly seasoned dishes, pickles, salted and dried meats, rich and heavy pas-

try, and cheese, except as a mere relish, ought to be excluded from a table professing wholesomeness.

If water is taken it should be in moderation, otherwise it may interrupt digestion. Some find warm water, or milk and water a pleasant beverage. The habit of taking wine after dinner is one of luxury, not of health, and all that can be said of it in hygienic instructions, is—the less the better.

The practice of taking a little fruit at the same time is not equally hurtful, provided, by its quality or quantity, it does not excite indigestion.

Tea. The English custom of taking tea, or a simple warm liquid meal, three or four hours after dinner is a very salutary one, and probably disagrees only with those who dine too late or overload the stomach at dinner. The purpose of the warm liquid is to assist in the separation and absorption of the chyle from the chyme which takes place at this period, and it is obvious, that it would interfere with this process to introduce solid food into the stomach, therefore little or nothing should be eaten—certainly not quantities of buttered toast, rich cake, and the like. Two or three moderate cups of black tea with a little milk and sugar, forms a wash to the stomach to carry away the taste and smell of dinner, and remove all acrid materials, left by digestion, which might disturb that rest for which the hour now approaches.

The practice of dining early, at from one to three P. M., which is pursued by the majority of persons in the lower and middle ranks of society, would deserve more general adoption on the score of health, were it not generally impossible then to devote the time to it, and to rest after it, that the principal meal requires.

A hurried, early dinner, if enough to satisfy the appetite, is pretty sure to cause indigestion, and disqualifies for exertion afterwards. If, on the other hand, it be purposely made light, it may not suffice for the wants of the system, and an evening meal or supper will be necessary. The chief objection to suppers is, that they are indulged in either so freely or at so late an hour, that their primary digestion is not accomplished by bed time. Hence flatus and other symptoms of indigestion occur on lying down, and may prevent or disturb sleep, and the individual rises on the following morning with a pasty mouth and unrefreshed. To avoid these consequences, the supper should be taken at least two hours before going to bed, and should consist of such light nourishment as is easy of digestion, not too bulky, and not disposed to generate flatus. Those who use much exercise may take with advantage a little light meat, chicken, game, white fish, or lightly dressed eggs (with a small quantity of wine and water or sound beer if this do not disagree.) Those who require less sustaining food, as sedentary, plethoric, or inflammatory individuals, will find a more suitable supper in a light farinaceous pudding, bread and milk, or oatmeal porridge; the last being especially useful in persons of costive habit. A few currants, raisins, or a little apple, with farinaceous puddings, counteract their constipating tendency.

A habit of regularity in the hours of meals is of great importance in the preservation of health. The stomach acquires the habit of expecting and the power of digesting food at regular intervals, and various disturbances in its

function and in the system result from irregularity. For this reason it is much better for those who cannot always dine early, to keep regularly to the late hour. The evil effects of long fasting are partly dependent on the infraction of this rule, but some result from inanition which has been noticed under the head of causes of disease. Few delicate persons can bear much exertion of body or mind before breakfast; the practice of any early morning walk is only suited to the robust, who feed largely and late on the preceding day. When it is borne in mind that food is intended not only to supply the slower process of nutrition and reparation of the body, but also to afford materials for the immediate protection of the blood against the chemical action of the oxygen absorbed in respiration, and of the stomach against the chemical action of the gastric juice—the injurious tendency of long fasts will become apparent, and the more so in proportion as the small capacity of the digestive powers limits the quantity of aliment taken at a time.

OF CLOTHING.

In a climate so variable as that of the United States, both nature and the texture of the materials which compose our dress merit more particular consideration than in general is bestowed upon them. Numerous diseases are to be ascribed to the want of attention in accommodating our dress to the temperature of the climate, and to the various seasons and vicissitudes of the weather. It ought to be varied in point of thickness and warmth according to the sudden changes in the atmosphere, which occur at different seasons. It is, however, not intended to inculcate a scrupulous nicety in changing the dress with the daily fluctuations of the weather, but the general precept, not to dispense with the winter dress too early in the spring, nor retain that of the summer till the approach of the boisterous season of autumn, should be most strictly regarded. Those who have a just conception of the baneful influence of intense cold, when applied to the skin, will duly appreciate the precaution above suggested. The Dutch are so sensible of the importance of guarding the body against cold, that they wear more than double the quantity of clothing that is customary in this country, and it is said that catarrh and consumptions are scarcely named in the catalogue of diseases among those people.

The inhabitants of Canada are in the habit of wearing flannel next to their skins, and when exposed to the severity of the weather, they are wrapped in furs. Strangers who visit our country from abroad have frequently expressed their astonishment at our thin dress, so very ill adapted to withstand the inclemency of the weather in this cold and variable climate; and they were at no loss to account for the colds, coughs, catarrhs, and consumptions so prevalent among our inhabitants. The mode of dress among our leaders in fashionable life, cannot but appear strikingly inadequate to the salutary purposes for which it is intended.

It is not uncommon to see young gentlemen coming from a warm, close room, and exposing themselves to the severity of the cold, easterly winds, storms and night dews, with scarcely an additional garment. These votaries of courteous gallantry, it would seem are more solicitous to display a handsome form, than to adopt the means which Providence has put into their power for the preserva-

tion of life and health. Nor is the imprudent conduct among the other sex less reprehensible. In preparing for an evening visit, it is common for ladies to retire from a warm parlor to a cold dressing room, and, having changed a comfortable, warm gown, for one of thin muslin with short sleeves, leaving the arms naked almost to the shoulders, and the neck and breast bare, or covered with thin lace, they walk through the streets with thin shoes, by which their feet are unavoidably wet and cold, and as the rules of politeness forbid their drying them in the presence of company, they sit a considerable time in a shivering condition.

At length, tea being served and the fund of anecdote and conversation exhausted, they retire from a warm, crowded room, through the cold, damp night-air, and soon go shivering to bed. Who will be surprised that the consequences of such imprudent exposure are catarrhal affection, affections of the chest and lungs, with cough and hoarseness, eventually terminating in fatal consumption?

Motives of delicacy as well as regard for health have been repeatedly urged in vain to enforce the necessity of relinquishing these destructive habits, the arguments of the moralist and of the physician having alike failed to convey conviction, hundreds who would now have shown forth among the loveliest of the sex, have been dressed in shrouds, because in an evil hour they laid aside those parts of their apparel which health, as well as decency, forbade them to relinquish. In Scotland colds were extremely rare and consumption seldom met with, until the thick, warm, Scottish plaiding was relinquished for the thin English dress, when these disorders became extremely rife, and are now perhaps even more frequent than in any other part of the British Isles. The feet and chest are the two parts of the body which are more liable to receive the ill impressions of cold and communicate them to the rest, and these at least should be defended with the utmost care by covering them with flannel or fleecy hosiery. There is another custom introduced among young females which ought to be noticed here for the express purpose of bestowing on it the severest reprehension. It is that of wearing iron, or other hard substance, called corsets, against the breast-bone, with the view of improving their shape.

Could they be made sensible of the folly and absolute danger of thus compressing the vital parts they would readily relinquish all claim to genteel appearance, rather than incur the hazard which might attend the use of corsets.

From a just consideration of these circumstances, the question may readily be solved, why consumptions have so greatly increased among our young people of late years.

The perfection of dress, considered merely as such, consists in its being accommodated to the form of the body without pressing or binding any part. Tight bandages about the neck are extremely detrimental. By impeding the circulation of the blood they often produce head-ache, vertigo and other more dangerous complaints, and when applied to the limbs they prove injurious by hurting their growth and occasioning lameness and many inconveniencies.

The inquiry is often made, what is the covering most proper to be worn next to the skin? The advantages and disadvantages of a flannel shirt have re-

ceived such ample consideration of late years that little remains to be said on the subject, but to recommend the general employment of it as one of the most useful articles of wearing apparel.

Experience has so fully evinced the utility of covering the skin with flannel that no person who has been habituated to its use in our damp and variable climate can be persuaded to dispense with it at any season of the year.

It may not perhaps seem advisable to recommend the use of flannel shirts to infants and young, healthy persons, but to those who have passed the meridian of life, to persons of cold and phlegmatic habits, to such as are subject to gout, rheumatism, colds and catarrhs, and, in short, to valetudinarians of every description, this article of dress should be considered as an indispensable requisite.

Linen shirts, when worn a few days, are not only liable to excite a sensation of coldness but to obstruct perspiration, which effect is produced in proportion to the thickness of the texture. Flannel, on account of the gentle friction which it occasions on the skin, produces a moderate warmth and promotes perspiration, at the same time, on account of the porous nature of its substance, the matter which it absorbs from the skin is easily evaporated.

By its gentle stimulus on the skin flannel has the beneficial effect of keeping the pores in a state the most favorable to a uniform perspiration, and when by brisk exercise the body is covered with the matter perspired, it passes off through the flannel into the air, and the skin remains dry and warm. But during a profuse perspiration in linen shirts the perspired matter, instead of being dispersed into the atmosphere, is retained by the linen, and not only clogs the pores but excites a very disagreeable sensation of chilliness, often followed by a violent cold, and sometimes even fatal effects. As flannel from its open texture is not liable to retain the moisture discharged from the skin, people who wear it are far more secure from taking cold on going into the open air during profuse perspiration, than those who wear linen shirts.

Prejudices have been excited against flannel by some people imagining that that it occasions weakness by too much increasing perspiration, but when it is considered that perspiration can seldom be immoderate as long as the skin remains dry, and that flannel tends to preserve it in this state, the objection will not appear to be founded in truth.

It is granted that when flannel is first used it excites an unpleasant sensation, and the skin is apt to become red and inflamed, but this inconvenience is of short duration and will be deemed a trivial objection by those who know its many advantages. Instead of producing cutaneous eruptions, as some have asserted, a flannel shirt by preserving the pores open and increasing perspiration tends greatly to remove the cause of such affections.

In short, there are no disadvantages attending the use of this valuable substance, except the wearer neglects to change it sufficiently often to prevent its becoming disagreeable by being soiled and dirty. The practice of wearing flannel during the night is not only unnecessary but injurious.

The object of using a flannel dress next the skin is to procure a uniformity of temperature on the surface of the body, and thereby keep the highly impor-

tant but too much neglected function of the skin in an active and healthy condition.

The body requires no extraordinary warmth during sleep, on the contrary there is at such times even a tendency to an increase of the natural warmth.

A flannel dress worn next the skin throughout the night becomes so charged with perspiration that its power of conducting heat is thereby greatly increased and its preservative effects proportionately diminished.

By substituting a coarse calico for a flannel during the night, the body is kept in that temperature which fits it for encountering the vicissitudes of the following day, and the flannel, when resumed in the morning, will be in a state which contributes both to comfort and protection.

The gratification derived from resuming a dry comfortable flannel in the morning, together with the sensible increase of its utility during the day, will be found to compensate amply for the slight unpleasantness attending the momentary exposure to cold while exchanging it the preceding night.

Such are the beneficial effects to be derived from the use of flannel, that it may be strongly recommended as a preservative of health, it is well suited to all seasons and may often render a cumbrous upper dress unnecessary.

As a remedy in disease, a flannel shirt has been known to prove of great utility in gouty and particularly in rheumatic habits, and in obstinate coughs attended with symptoms of consumption. Upon the whole, this article of dress, considered both as a preservative and remedy of various diseases, merits a very general and extensive employment. In the late war those officers and soldiers who wore flannel waistcoats next to their skins not only escaped colds but dysenteries and other contagious disorders, while those who wore none were soon carried off by the diseases so commonly fatal in camps.

Cotton is an intermediate substance between linnen and wool, although it increases warmth and perspiration, it is far from being conducive to the preservation of health. A cotton shirt is very liable to imbibe and retain the matter of perspiration, and being accumulated in the form of a glutinous substance, obstructs the pores of the skin, and affords opportunity for the perspired humors to be taken again into the blood to the great injury of health.

Cotton stockings, for the same reason, are improper, and both linen and silk stockings have nothing but taste and fashion to recommend them. In fact, stockings made of wool, are greatly to be preferred to all others, on account of warmth and their quality of promoting a uniform perspiration. The old maxim of keeping the head cool and the feet warm, is not to be regarded in its strict, unqualified sense. The covering for the head, like the other parts of the body should be accommodated to the state of the weather. There can, however, be no disadvantage in general in keeping it thinly and lightly covered, and, in many instances in young persons, the natural covering may of itself be sufficient protection in moderate weather, and indeed those who accustom themselves to wear thick, warm caps in common, render their heads unnaturally sensible to all changes of the atmosphere. There are, nevertheless, certain persons who suffer inconvenience from the want of some moderately warm covering for the head, deafness, headache, and many other complaints are, on some occasions,

to be attributed to this cause. The best general rule, therefore, is to avoid the two extremes of great heat, or improper exposure to cold, and when experience evinces the necessity of it, some proper covering, as a cap or wig, ought to be adopted.

It is a point of great importance, during a hot season, to have the head properly guarded against the intense vertical rays of the sun as inflammation of the brain, and even fatal consequences, have been known to ensue from an exposure to their influence. The common black hats, with very narrow brim, which are sanctioned by the present fashion, are evidently ill-calculated to shield the head from the solar rays. White, or light-colored hats, as they have greater power of reflecting the heat, ought in summer to be preferred to black, and the brims should be lined with green silk, and sufficiently wide to protect the eyes and face. The keeping the feet warm and dry, is to be considered of the greatest importance, since numerous diseases owe their origin to a want of care and attention in this respect. In consequence of cold and wet feet, the blood is accumulated towards the head, a sensation of coldness over the whole body ensues, perspiration is obstructed, and not unfrequently a foundation is thus laid for incurable disease.

The feet, therefore, ought to be kept somewhat warmer than the rest of the body. Having said this much relative to the materials of our dress, it remains to be observed that the quantity must be determined by personal experience, as no general rule can be prescribed that will apply to every individual. It will, however, be found a most salutary precaution on all occasions, so to increase or diminish the outer garments, that the body may, as nearly as possible, be preserved in a natural and uniform temperature in all seasons of the year.

It may be useful so make one remark here in behalf of those who labor under the infirmities of old age. Warm clothing, more especially warm bed clothes, are indispensably necessary to preserve or increase the natural heat of old people.

OF AIR, OR ATMOSPHERE.

Air is that invisible, transparent, compressible, and elastic fluid, which everywhere surrounds our globe, and which generally receives the name of atmosphere. It is the medium in which we breathe and without which we cannot exist. It is now very generally understood, that the atmospheric air, or that by which you are usually surrounded, is not a simple, but a compound body, consisting of at least four distinct substances, namely: oxygen, azote, carbonic acid and aqueous vapor. The two former substances, however, constitute almost the whole of the atmospheric air near the surface of the earth; the other two are variable in their proportion, and exist only in minute quantities, which it is difficult to appreciate. There are various methods known to chemists, by which these two airs may be separated from each other. Vital air or oxygen, which constitutes about one-fourth of the atmosphere, is necessary to respiration and combustion, and an animal immersed in it will live much longer than in the same quantity of common air. The remaining three-fourths, called azote or mephitic air, is totally incapable of supporting respiration or combustion for an instant. If a candle be included in a given quantity of atmospheric air, it will

burn only for a certain time and then be extinguished, as the oxygen is all absorbed and the azote, which remains, is incapable of supporting flame. If an animal be immersed in a given quantity of common air it will live only a certain time, at the end of which the air will be found diminished about one-fourth and the remainder will neither support flame or life. It appears that three parts of azote and one of oxygen, will form a compound similar to atmospheric air, and is that which is best suited to support the health of the body. Were the atmosphere to contain a much larger proportion of oxygen, by its powerful influence on the system inflammatory diseases would be induced, and the excitability be sooner exhausted. If, on the other hand, a much less proportion of oxygen should prevail in the atmosphere, there would be a deficiency of stimulus, and the excitability of our systems would morbidly accumulate, and diseases of debility would be the consequence. The oxygen which is received into the lungs of animals, is supposed to communicate the red color to their blood, and to impart heat and activity to the system. When animals die for want of vital air, their blood is always found black.

There is a constant consumption of the oxygenous portion of atmospheric air by the burning of combustible bodies, by the fermentation and putrefaction of vegetable and animal substances, and by the calcination of metals. A greater or less proportion, therefore, of the noxious ingredient, azote, in our atmosphere, undoubtedly arises from the innumerable processes of combustion, putrefaction and respiration of men and animals, particularly in populous cities, the atmosphere of which is almost constantly prejudicial to health. The atmospheric air is never absolutely pure and salubrious in any situation, but always mixed with heterogeneous particles, and the different states and changes produce very perceptible effects on the constitution. Warm air, if long continued, relaxes the solid parts of the body, quickens the circulation of the fluids, dissipates the watery part of the blood, renders the bile acrimonious and produces disorders in the bowels, and fevers of a malignant kind.

A moist air is universally the most productive of diseases, but when heat and moisture are combined, it is of all conditions of the air the most destructive to the constitution, by impairing the elasticity of the solids, obstructing perspiration, and disposing to putrefactive diseases. A cold state of the air, if not excessive and long continued, is favorable to bodily vigor, especially in those who are accustomed to take active exercise; but extreme cold air, by constringing the solids and condensing the fluids diminishes perspiration, and often occasions rheumatism, catarrhs, and other affections of the lungs. The conjunction of dry and cool air is attended with salubrious effects, but a pure, dry air, moderately warm, is of all the most agreeable and salutary.

All great and sudden changes from a warm to a cold air, and the reverse, produce in general a variety of complaints and frequently diseases of a fatal tendency. The surest mark of a salubrious and good air in any place is the longevity of the inhabitants.

Winds, or currents of agitated air, likewise produce very sensible effects on the human constitution. A wind blowing steadily from the north purifies the atmosphere of noxious vapors, renders the air serene and dry, by which the

system is invigorated and rendered active, though to persons of delicate habits it may prove severe and injurious. An easterly wind is cold without bracing, and in our climate is incomparably the worst of all others, uncomfortable, and the most prejudicial to health, especially on valetudinarians. To the asthmatic, and such as are disposed to intermitting fevers, it is particularly injurious. The coldness of our easterly winds in the spring is such as to occasion very uncomfortable sensations in the generality of persons exposed to their influence. It has been remarked that the solvent power of an easterly wind upon the water is astonishingly great. After blowing over a large tract of the ocean, it contains much water, but is chemically combined with it, and consequently transparent; it is also observed to take up more vapor from the ponds and meadows over which it passes than that which blows from any other quarter. The thermometer, of course, discovers the increase of cold consequent upon this evaporation. It has been observed that long continued easterly winds renders people who are naturally of a mild and placid temper irritable and morose, and that instances of suicide are most frequent in those countries and seasons where easterly winds are generally prevalent. The south wind is generally accompanied with a latent humidity which relaxes the body and disposes to affections of the head and breast.

The atmospheric air, as already observed, is incessantly corrupted by the respiration of men and animals, and by dissolution and putrefaction of innumerable substances. In populous cities the air is constantly contaminated with sulphur, smoke and a variety of other exhalations of an adulterous tendency, and from which asthmatic and consumptive persons, and likewise those of weak nerves, experience the most prejudicial effects.

It is therefore apparent that persons of this description ought, as much as possible, to avoid the corrupt air of large towns, or at least to change the air by frequently visiting other situations. In the open country there are few causes to contaminate the atmosphere, and the vegetable productions are continually tending to render it more pure. The winds which agitate the atmosphere, and constantly occasion its change of place, waft the pure country air to the inhabitants of cities, and dissipate that from which the oxygen has been in a great measure extracted.

Were it not for this wise provision of the Author of Nature, from the daily combustion of an immense quantity of fuel, the numerous substances constantly undergoing putrefaction, and the exhalations from a large number of people and animals, the air in populous cities and towns must soon become unfit for the purposes of life.

The numerous chimney-fires in cities serve also an excellent purpose by rarfying the atmosphere and thereby obviating the mischiefs which otherwise might ensue.

The great importance of a pure air for the preservation of the lives of children is placed in the clearest light by the following instance: In the lying-in hospital at Dublin, two thousand nine-hundred and forty-four infants, out of seven thousand six hundred and fifty, died in the year 1872, within the first fortnight after their birth, which is nearly every third child. They almost all died

in convulsions; many of them foamed at the mouth; their thumbs were drawn in the palms of their hands, their jaws were locked, the face was swollen and looked blue, as if they were choked. This last circumstance led the physicians to conclude that the rooms in the hospital were too close, and hence, that the infants had not a sufficient quantity of good air to breathe; they therefore set about ventilating them better, which was done very completely. The consequence is that "not one child dies now where three used to die."

The air of any place where a numerous body of people are collected together especially if, to the breath of the crowd, there be added the vapors of a great number of candles or lamps, it is rendered extremely prejudicial, as it occasions great consumption of oxygen. The fact is well known, that when air has been long confined and stagnated in mines, wells and cellars, it becomes so extremely poisonous as to prove immediately fatal to those who imprudently attempt to enter such places. No person should descend into a well or cellar which has been long closed without first lowering down a lighted candle; if it burn clear, there is no danger, but if it cease to burn we may be sure that no one can enter without the utmost danger of immediate suffocation.

It sometimes happens also that when air is suffered to stagnate in hospitals, jails, ships, etc., it partakes of the same unwholesome and pernicious nature, and is a source of disease. It is obvious, therefore, that in all confined or crowded places, the correcting of vitiated air by means of cleanliness in every particular, no accumulation of filth about houses, clothes, or in the public streets, should, on any pretense, be suffered to continue, especially during the heat of summer. The pestilential effects which may be the consequence of a neglect of this salutary principle are almost inconceivable. The air is often rendered impure by hot fires or stoves in small rooms not sufficiently ventilated. This is peculiarly prejudicial to those who are subject to pulmonic complaints, and it ought to be cautiously guarded against.

The warm rooms, which are usually an appendage to the luxury of the capitals, and thin clothing abroad, lay the foundation for many of those complaints which are the precursors of consumptions. It is thus that catarrh usually originates in this country, and this always debilitates the lungs, and often terminates in consumption.

It is a very injurious custom for several persons to sleep in a small apartment, and, if it be very close, and a fire be kept in it, the danger is increased; and from this cause persons have been sometimes stifled in the night when asleep. It is deemed unsafe to leave the windows of a bed-room open at night during the summer months, as perspiration might be checked by the cool night air, while the pores are relaxed by the heat of the day and the warmth of the bed.

The vapor of *charcoal*, when burnt in close apartments, produces the most dangerous effects. Our houses, which are made close and almost air-tight, should be ventilated daily by admitting a free circulation of air to pass through opposite windows; and even our beds ought to be frequently exposed to the influence of the open air. Churches and other public buildings, if shut up for any length of time, and not properly ventilated by fires or open windows, and

especially if not kept clean, are found to contain a damp, musty and contaminated air, which proves extremely prejudicial to weak constitutions.

Houses situated in low, marshy countries, or near lakes and ponds of stagnant water, are constantly exposed to the influence of putrid vapors, which exhale from such noxious sources. To obviate this evil, fires should be made, during a sickly season, between the house and the place from which the putrid exhalations arise. But a very fertile and reprehensible source of poisonous vapors contaminating the air is that of church-yards situated in the middle of populous towns. The practice of depositing dead bodies in churches is still more liable to censure, as this forms a constant source of putrid vapors, however imperceptible, which cannot fail to prove greatly destructive to health.

Among the most powerful means furnished by nature of correcting air which has become unfit for respiration is the growth and vegetation of plants. The generality of plants possess the property of correcting the most corrupt air within a few hours when they are exposed to the light of the sun; during the night, however, or in the shade, they destroy the purity of the air, which renders it a dangerous practice to allow plants to vegetate in apartments occupied for sleeping,

In order to a more correct understanding of the qualities and effects of air, it is necessary to advert to that property of living bodies which renders them susceptible of external influence, generally termed *excitability*.

“There are according to Dr. Garnett, three states in which living bodies exist : First. A state of accumulated excitability. Second. A state of exhausted excitability. Third. When the excitability is in such state as to produce the strongest and most healthy actions when acted upon by the external powers. These leading principles are of great importance, in many cases, towards ascertaining more determinate rules of conduct relative to the prevention and cure of diseases.”

When the system is in such a state as to be very susceptible of the action of external powers, the excitability is said to be *abundant* or *accumulated*; in a contrary state of the system, the excitability is said to be *deficient* or *exhausted*.

When the action of the exciting powers ceases for some time, the excitability accumulates, or becomes more capable of receiving their action, and is more perfectly affected by them. This proposition may be exemplified by the effect of heat upon our bodies. If heat be for some time extracted, the excitability accumulates; or, in other words, if the body be for some time exposed to cold, it is more liable to be affected by heat afterward applied. For instance, if one hand be put in cold water, and then both be put into water which is considerably warm, the hand which has been in cold water will feel much warmer than the other. If one hand be plunged into snow while the other is kept of the same heat as the body, and then both be held near the fire, the heat will affect the cold hand infinitely more than the warm one. In like manner, when the body has been exposed to excessive cold for some time, the excitability will be so greatly accumulated that if the heat of a fire be suddenly applied it will act with such violence as to occasion a high degree of inflammation, and even mortification may be the consequence. Hence chilblains, and other inflammatory

affections, are common with those whose hands and feet are exposed to violent cold, or wet with snow, and receive the heat of the fire without being first put into cold water or rubbed with snow.

The great changes in the temperature which the air undergoes must have very considerable influence upon the constitution. In our climate the air varies from several degrees below the freezing point to more than ninety-five degrees of heat. We then experience the extremes of cold and heat by which our bodies are unavoidably relaxed and our constitutions exhausted.

Heat possesses the property of stimulating and acting upon the excitability by which animal life is supported and continued, and without which we could not exist even for a few minutes,

In a moderate temperature of air the stimulus of heat acts upon the excitability without exhausting it to such a degree as to occasion disease. But when the degree of heat in the atmosphere is much increased and continues for a considerable time, an exhaustion of the excitability, and consequent relaxation and debility must be the result, as the common stimulant powers on which life depends cannot produce a sufficient effect upon the excitability to impart to the body that tone which is compatible with health. When, on the other hand, the stimulus of heat is much diminished, or when cold is applied to the body, the excitability must accumulate or become more susceptible of the action of external powers. It is not often, however, that ill consequences result from this condition of the system unless the exciting powers be improperly or too quickly applied, as we can bear a considerable diminution of heat with impunity, and the action of cold, unless it be excessive, never produces any bad effects upon people in health.

It has been generally supposed that catarrh, or a cold, is contracted in consequence of exposure to cold air, but it is now ascertained that the immediate cause of that inflammatory affection of the mucous membrane of the nose, fauces and bronchiæ, which always attend catarrh, is not to be ascribed to exposure to cold air after being heated, but precisely the reverse of this takes place. It is not until we approach a heated atmosphere after coming from a cold one that we experience the symptoms of having taken cold. The cold air, drawn into the lungs by every breath, diminishes the heat of these parts, the excitability accumulates, and they become more liable to be affected by the succeeding heat. While we continue in the cold air we are not sensible of any ill effects, but on coming into a warm room we soon experience the operation of those symptoms which evince our having taken cold, and the more we try to obviate these symptoms by the application of external heat, the more are they increased and aggravated. Such is the effect of violent action of heat on the accumulated excitability.

"After cold," says a late eminent physician, "the sudden application of heat must produce the violent action which constitutes inflammation." The symptoms are ascribed to the cold, and are the effects of an inflammation of the schneiderian membrane, which lines the nostrils, but it is the heat which is the immediate cause. We do not feel that we have taken cold till we are exposed to the action of heat, as when we come into a warm room, or in a warm bed,

after exposure to a cold atmosphere; and similar consequences are known to follow the application of heat to frozen limbs, viz., inflammation and mortification of the parts. The mistaken idea of "taking something warm to keep the cold out," occasions more colds, perhaps, than all the other exciting causes of the complaint united.

It is a dangerous practice for persons when returning from an excessive cold atmosphere, to approach a fire without first waiting for the accumulated excitability to be gradually and moderately exhausted by the gentle action of heat, and to drink warm or strong liquors while the body is thus chilled with cold, is still more hazardous. When persons have their hands and feet exposed to intense cold by which the excitability of those parts is much accumulated, they will obtain the most effectual relief by putting them into cold water, or by rubbing them with snow until the morbid excitability be gradually exhausted.

It is an erroneous idea, that people should cool themselves before going from a warm room into the open air; they should, on the contrary, accumulate a large portion of heat, and then secure their bodies by warm clothing and the use of active exercise, and, being thus prepared, they may pass through the most intense cold with perfect impunity. But after being exposed to cold air till the natural warmth begins to decline, they can never return into a warm room or near a fire without a risk of dangerous consequences. Let it, therefore, be constantly observed as a rule, that where the body or limbs are affected with intense cold, the only safe method is to produce the natural feeling and warmth by means of gradual heat.

The fact seems to be fully established that, in proportion to the increased degree of the heat of the body is the safety with which cold may be applied, provided it be applied freely and before the heat begins to decline. Of this we have a sufficient proof in the practice of the Russian inhabitants who first bathe in water heated to as high a degree as the body can bear, and immediately after roll themselves in snow, and this with perfect impunity.

Few of the refinements of modern luxury and fashion are more prejudicial to health by rendering the body susceptible of cold than the living in small, close rooms, heated to excess by fires or stoves.

Another practice, no less injurious, is to sleep in heated apartments upon soft beds, artificially warmed, and under a load of bed-clothes.

It is far more salutary for the strong and healthy to go into a cold bed, regarding it as a necessary rule, however, to acquire a moderate degree of warmth immediately previous to retiring to rest, for if we get into bed cold and chilly we shall remain so the greater part of the night. From the foregoing view of the subject, it is obvious that nothing so much contributes to enervate the powers of the human frame as an excess of external heat, which debilitates by its perpetual stimulus, until the system becomes extremely sensible to the slightest variation of temperature of the air. It is of primary importance, therefore, that young persons be gradually habituated to bear the impressions of cold and induce that enviable state of hardiness that will enable them to brave with impunity the vicissitudes of the atmosphere of our climate. And in order to obviate the most frequent cause of catarrh, which is so prevalent among

us, we should accommodate our dress to the season and personal feeling, and when changes from cold to heat, or the contrary, are unavoidable, carefully guard against the transition being sudden and immediate.

EXERCISE.

The position is universally established, that exercise should be ranked as among the most powerful agents which we can employ for the preservation of life and health. The ancients, as well as the moderns, have attributed great utility in pursuing a proper course of exercise, and even considered it the sole instrument in the cure of some diseases, especially those of the glandular and nervous systems.

Galen was a zealous advocate for the various kinds of exercise, as a curative remedy, and the great Sydenham was so exceedingly sanguine in his opinion of its salutary effects in the prevention and cure of numerous diseases, that he was led to give a latitude to it which can scarcely be admitted. Indeed, the beneficial effects to be derived from exercise, properly performed, in all chronic diseases, are almost inconceivable. It strengthens the solid parts, and promotes the circulation of the fluids, beyond anything else within the compass of nature. It increases perspiration, and prevents many of those diseases which cannot be cured, and may remove others where medicine proves ineffectual. A common source of consumption in our females is want of exercise. There is no country in which the common habits of improved social life are adopted, in which this sex are less attentive to that most essential requisite for the preservation of health than in the United States.

No exercise is equally salutary with that of walking. This gives action to the muscles of the limbs, where the circulation, from the distance of the vessels from the heart, is apt to be languid. It throws the blood forcibly forward towards the lungs, and thereby affords an opportunity for the mass to be exposed in larger quantities to the action of the air, by which alone it is rendered fit for circulation. This oxygenation of the blood by air endues it with the property by which it is enabled to excite its vessels into stronger action, and by that means to give strength and vigor to the whole system. Who does not notice that our sedentary females are put out of breath by the smallest degree of exertion, beyond what they have been accustomed to? That the lungs have become so irritable for want of the stimulus which exercise exerts upon them, as to be thrown into a kind of convulsive cough from the most trifling acceleration of the blood in its passage through them. Whereas, in the females of our country towns, who have constantly habituated themselves to walking, riding and the greatest variety of domestic labors, may be noticed the large play of lungs in quick walking, a deep and full respiration, with all the attendant advantages of a sufficient and complete oxygenation of the blood. Nor are these observations inapplicable to the other sex.

There is not one man in a hundred who, from the nature of his occupation, is not obliged to do it, and not one in two hundred will do it from principle. The more active kinds of exercise—as running, leaping, riding, swimming, fencing, etc.—are the most suitable to youth and those of a middle age, and particularly to the corpor-

lent. The passive kind—as riding in a carriage, sailing, swinging, etc.—are best adapted to infants, to the aged, and to the delicate and weak. Walking gives the most general action to the muscles of the body and limbs, but for the valetudinarians, and those who have weak bowels, or are consumptive, riding on horseback is preferable. It is almost incredible how much the constitution may be strengthened by this exercise, when continued for a considerable time, especially when, on long journeys, a perpetual change of air and of scenes and objects combine their advantages. Invalids who have recourse to this exercise should be accompanied by a cheerful companion, and they should not commence a journey for health until they have tried their strength in short rides, nor discontinue the exercise abruptly, but gradually.

They should divest the mind of all deep reflection, and gratify the sight with the prospect of the various objects which present themselves to view. The unwholesome air of large towns, the damps of marshes, and the morning and evening dews, ought to be particularly avoided by invalids when traveling for health. It should be remarked that exercise immediately after eating is frequently productive of hurtful consequences, particularly in those of nervous and irritable constitutions, and fatiguing exercise should never be practiced till the process of digestion is completed, which generally requires three or four hours after eating.

The exercise of riding in a carriage is conducive to health, but the greater the motion allowed to the body of the carriage, the more beneficial will be its effects, provided too much fatigue be avoided.

Dancing is a salutary exercise, especially in the winter, if not too violent or carried to excess; but when performed in the warm atmosphere of a crowded assembly, and especially, if at the same time liquors of a heating nature be taken, or cooling drinks during a profuse perspiration, very serious consequences may be apprehended from such excesses. The laborious kinds of exercise attending agricultural employments, as hoeing, digging, raking, chopping, etc., have sometimes been found to produce advantageous effects. For children, skipping the rope is a salutary kind of exertion when not carried too far. Among the passive kinds of exercise, sailing is the most efficacious. The giddiness of the head, nausea and vomiting which is often experienced by those who are unaccustomed to the motion of a vessel, are productive of very salutary effects. Consumptive patients, if they have recourse to sailing at an early stage, and also the nervous and hypochondriac, will often derive from this kind of exercise the most essential benefit.

But to those who are subject to spitting blood, sailing is not to be recommended. Reading or speaking aloud is a salutary kind of exercise; but to exert the voice vehemently immediately after a meal is injurious both to the lungs and the organs of digestion. The action of singing shakes the lungs and the contents of the abdomen, which promotes in a remarkable degree, the circulation of the blood through those organs. But the reverse of this takes place with those who are much in the employment of wind-instruments, as they introduce a large quantity of air into the lungs, and keep that organ too long in a state of distention. Hence persons of weak lungs, who play much upon the flute or

or other wind instruments are frequently afflicted with spitting of blood, cough, shortness of breath, and pulmonary consumption. There is a species of exercise yet to be noticed as both gentle and useful, and in the power of every one but which is too much neglected. I mean friction of the body by a flannel or coarse linen cloth. Friction is a kind of exercise that remarkably contributes to the health of sedentary persons; it excites and kindles the natural warmth, promotes perspiration, strengthens the fibres and tends to dissipate stagnant humors. The operation is particularly beneficial to the nervous, debilitated and studious.

The parts to be particularly subjected to this operation, are chiefly the abdomen, spine, or back-bone, and the arms and legs. Even in a state of health, this kind of exercise will be found exceedingly useful, but in many chronic complaints it is an excellent remedy which cannot be too much recommended as a useful substitute for other exercise, which cannot be resorted to at all times. It should be performed every morning and evening, when the stomach and bowels are empty, and continued for twenty minutes at a time. In rubbing the abdomen the operation ought to be performed in a circular direction, as being most favorable to the course of the intestines, and their natural action. It is proper here to remark that many ill-consequences may result from certain unnatural positions of the body, which sedentary artificers and others, are accustomed to practice.

A bending posture of the body while sitting with the head inclined forwards, tends greatly to check the circulation of the fluids in the abdomen, and the head itself suffers by such inconvenient position. It is likewise injurious to the lungs, for when this organ is compressed, the air cannot have free access in all its parts so as to expand them properly; the vital motions are thereby impeded and the health of course, must be greatly impaired. Those persons therefore, who spend much of their time in writing, should employ high tables or desks and raised seats, which will allow the body a more erect position.

Artificers whose lower limbs are constantly confined, as shoe-makers and tailors, ought to sit as erect as the nature of their employment will permit, and should change their position and make use of active exercise as frequently as possible. Although bodily exercise is an essential requisite for the preservation of health, this should not exceed the bounds of moderation, as too violent exercise, and a total want of it, are attended with equal disadvantages.

MENTAL OCCUPATION.

Under this head may be comprised a short notice of the mental influences which most conduce to the maintenance of health. As with the corporeal functions, so with the mind, a moderate and equable activity, with some variety of excitement and relaxation contributes to its well-being; and inasmuch as the body is greatly under the influence of the mind, the health of both is, therefore, equally promoted. The kind and amount of mental exercise must vary considerably, according to different circumstances of age, sex, temperament, capacity and habit of the subjects.

The topic is far too wide to be comprehended in the very cursory glance which we can give to it, and it must suffice to notice some variations of mental

discipline adapted to these different circumstances. In infancy the sentient and perceptive functions are active, the emotional feelings lively, whilst the higher moral and the intellectual faculties are very imperfect. Hence the sensitive excitability of this age, which becomes a frequent cause of disorder ; and to moderate this by various soothing expedients, as by gentle and lulling impressions on the senses, with timely resorts to varied amusing toys and other objects to divert attention and gently exercise the organs of sense and perception, is the chief aim at this early period. But as infancy passes into childhood, there is sufficient development of moral feeling and understanding to supply further means of control and direction, and although at this time it is equally necessary to avoid causes of fretfulness and passion, the principle of self-control and patience may now be properly inculcated by moral and religious instruction, enforced by a consistent example of kindness and justice in the conduct of those who manage the children. The mental as well as the bodily powers, at this early age, have no endurance, they are soon fatigued, and nothing can be more hurtful than to excite them too much, or too long, by games or scenes of amusement ; exhaustion, fretfulness and bodily suffering, are the common consequences of such excess and disease not unfrequently follows. A similar objection may be urged against too early or too prolonged attempts to educate the mind ; such attempts anticipate the period at which the power of concentration, or sustained attention is acquired, which it can be safely only by time and practice. Children precocious in intellect gain this power early, but this is a reason against its exercise, which would the more readily tend to strain the active faculties to a morbid degree.

As the mental capacity becomes enlarged by equal and judicious exercise in ripening youth, it is adapted to longer and severer tasks, and in addition to the advantages of thus improving the intellect by extended occupation at this age, the moral emotions and animal passions, which now acquire strength, are hereby moderated and kept in subjection. A leading rule to be observed in all attempts to develop and regulate the mind is, to exercise its powers as equally as possible ; the natural tendency is, that those powers which are constitutionally strongest should overrule and weaken others, and this applies to the impulses of moral feeling as much as to intellectual capacity.

A main purpose of education is to prevent the inequalities by exercising the weaker powers, and judiciously restraining those which unduly predominate. Herein education includes not the mere communication of knowledge, but the discipline of the heart and mind, the subjugation of evil and useless inclinations and propensities, and the direction of the intention or activity of the intellect to objects that are profitable and improving. The influences by the aid of which this discipline may be exercised are manifold, and must, in some degree vary with the age and with the character of the individual. In childhood, respect and love towards parents or others exercising authority ; in youth, the same feelings confirmed and cultivated by the convictions of the understanding now giving increased spontaneity of thought to the individual ; and in all ages, the constraining and elevating influence of religion in supplying the highest motives and rules for the conduct of thinking and responsible beings, these are the great

leading instruments through which mental discipline is safely and effectively applied.

But other and less dignified motives are often equally powerful, such as vanity, pride, ambition, rivalry, and the like, and although they prove the failing of the human mind from a standard of perfection, and unless controlled may become exaggerated into vice, yet under restraint they may be usefully enlisted on the side of mental improvement.

When youth ripens into adult age—although, technically speaking, education is complete—the discipline and culture of the mind (which are the objects of education) are still to be carried on with all the activity proportioned to the full development of the faculties and passions.

This being the period at which the authority of parents or seniors is more or less relaxed, and the individual is of age to take full responsibility on himself, it is of the utmost consequence that his mature powers should be directed in a career which may promote his present and permanent welfare, and much, in regard to his future health, depends on the possessing such ascendancy of mind over body, of moral over animal feelings, as may secure the establishment of wholesome habits of wisdom and temperance.

The subjugation of all gross appetites, the subordination of all turbulent or violent moral or mental emotions, the cultivation of the gentle and calming feelings fostered in domestic life or in refined social intercourse, and the regular but moderate application of the intellectual powers to some definite object or set of objects worthy of their pursuit, are items of mental discipline becoming the age of maturity, and, if steadily practiced, cannot fail to conduce not only to the health and endurance of both mind and body, but also to their lasting comfort and happiness.

It is true that many difficulties beset the beginner in his endeavors to follow such rules; many struggles against the inferior part of himself; much exercise of patience and forbearance in regard to others; a frequent practice of self-control in avoiding the temptations and excitement of intoxicating amusement, and a constant vigilance over the mind to restrain it equally from wandering into by-paths away from its proper road, and from lapsing into desultory abstraction or indolence; and these impeding forces within are often prompted or seconded by not less formidable obstacles without, thrown up by the multitudinous and ever-rising temptations and trials of life—never absent, but often peculiarly besetting its anxious and unsteady commencement.

Need we say, then, that the efforts should be proportioned to the difficulties? And with the full and rational exercise of human means, but with humble and faithful dependence on more than human guidance and strength, these efforts will never prove unsuccessful.

But it is more especially our object to indicate the modes in which reciprocally the mind and body may promote each other's health, and much may be summed up in the Platonic axiom that they should be well balanced in their exercise and activity. The undue or too prolonged occupation of the mind with deep study or thought, abstracts the supply of blood and vital energies from the bodily functions; these suffer and fall into weakness and disorder, whilst

the nervous system, the natural organ of the mind, is ultimately exhausted by the continued excitement, and refuses to perform one of its manifold functions; hence stupor, paralysis, or organic weakness of some kind may ensue; or others may retain a morbid erethism or irritation in the midst of general weakness; and delirium, spectral illusions, sleeplessness, tremors, spasmodic or painful affections, may be the consequence.

Mental idleness, on the other hand, not only weakens the intellect by disuse, but, by inducing habits of indolence and self-indulgence, pampers the body and perverts its proper functions, degrading them to approximation to brutal or even vegetable life. Moderate and well-timed exercise refreshes the mental powers, and, enabling them to apply with renewed vigor, increases their permanency and sphere of action. So, likewise, pleasing mental impressions, as from beautiful scenery, congenial associations and interesting pursuits, heighten the benefits of bodily exercise, and give all the faculties that nascent energy which is well expressed by the term *recreation*. A similar advantage accrues from varying the kind of mental occupation; thus music, drawing, amusing games and light reading are to many more effectual than absolute rest, in refreshing the mind after severe study or close application.

In like manner intellectual tasks of different kinds may be profitably alternated with each other, as the several muscles of the body are more beneficially exercised in succession than all at once.

Analogous rules may be applied to the moral emotions, so far as they can be placed under the direction of the individual, and there is in most energetic minds somewhat of a natural or habitual succession of high and low spirits, of lights and shadows in the mental hemisphere, which, however trying and hazardous it may be in extremes, when occurring in moderation, gives a renewed vigor to thought which is wanting in minds of more perfect placidity.

SLEEP.

It would be quite superfluous to expatiate on the health-giving influence of a due amount of tranquil sleep. It is the chief means of recruiting the exhausted energies of the animal functions; and some of the causes and consequences of its failures have been already noticed among the causes and elements of disease.

It appears to consist in a more or less complete suspension of the cerebral or sensorial functions, with an increase of the medullary and organic nervous influence, and we have suggested that a modification in the distribution of the blood through the nervous centres may be instrumental in thus periodically reducing the activity of those parts which are not so essentially concerned in the maintenance of life. The sensorial functions are only impaired, not completely suspended, for a proof of their partial continuance during sleep is to be found not only in dreaming, but also in the voluntary movements, often performed to remove uncomfortable sensations, and even in the act of awaking, when such sensations attain a certain degree of intensity. The approach of sleep is announced by the feeling of drowsiness which consists of a dulness of sensation, perception and thought, and an indisposition to exertion. Gaping and yawn-

ing, although symptoms of supineness, result from efforts to resist it; they seem to be movements designed to throw certain muscles, especially in the throat and neck, into a state of tension, during which the sensation of drowsiness is for the moment increased to a degree rather agreeable than otherwise, but followed by its diminution. It is very probable that these movements tend to re-excite the slackening cerebral circulation, by momentarily impeding it, and then allowing it to flow again with augmented force, a process like that of *flushing*. Sleep closes the relations of the senses to all moderate impressions of the external world and suspends almost all voluntary movements, among which are to be reckoned those supplementary to the process of respiration.

The respiration is rendered, therefore, less frequent and more prolonged than when awake, and the pulse is also lowered. The circulation and changes of the blood being thus reduced during sleep, there is less power of maintaining animal heat, hence the chilliness of persons during and after sleep, and their susceptibility to cold, unless better protected than usual by clothing.

Hence, too, the relaxation of the skin after slight febrile excitement, which, during sleep, yields to perspiration.

The circumstances which promote sleep are chiefly those which impair the activity of the animal functions, and those which withdraw all causes of excitement to mind or body.

A moderate degree of bodily and mental fatigue, the absence of all uneasy sensations, a comfortable posture, giving the most complete rest to the limbs and voluntary muscles; a freedom from the feeling of either hunger, thirst, or repletion, cold or heat; the periodic recurrence of a regular hour for repose, and the stillness and darkness of night, are favorable for the induction of sleep.

In addition to these, which act negatively by excluding excitement, there are others which are sometimes found to promote sleep by causing gentle and monotonous sensations or ideas, which have the effect of lulling into somnolence; such, for example, as the various expedients for hushing infants to rest, by rocking, patting the back, singing, etc.; and with adults, like soothing devices, sometimes succeed, as by gentle friction, reading, prosy talking, and other dull impressions on the senses, which slightly tire without excitement.

These probably operate by diverting the attention from other feelings, or noises, which, occurring occasionally, tend to disturb.

The passes of mesmerism seem to act on the same principle. The expedient of counting or reciting one's self to sleep owes its efficacy (which is but small) to the abstraction of all attention to an uninteresting object. The influences which prevent or disturb sleep are for the most part the reverse of those last described. Any undue excitement or sensation of body or mind, whether of a painful or a pleasurable nature, strong, sudden or startling impressions on the senses, uneasy postures, extreme fatigue or exhaustion, oppressed or imperfect breathing, palpitation of the heart, hunger, thirst, nausea, flatulence, and various other (often undefinable) sensations in the viscera, extremes of temperature, coldness of the extremities, irregularity in habits of getting rest, comprise the ordinary causes of sleeplessness. They operate either by directly exciting the sensorium to a degree inconsistent with the suspension of its functions, or by

so much reducing or disordering the power of the medulla, that it is incapable of sustaining the respiratory movements without the aid of voluntary effort. In the former case positive pain, uneasy sensation, or exciting trains of thought, are present. In the latter, there may be the desire to sleep, but no sooner does its commencement suspend the voluntary efforts by which the breathing is aided than this process becomes imperfect, and the person starts with a feeling of oppression or impending suffocation, which his commencing dream impersonates into nightmare, or connects with the idea of being pursued by demons, falling down a precipice, or some such horrible catastrophe, which entirely precludes the reality of sleep. Such are the sleepless hallucinations of *delirium tremens* and similar disorders, in which continued excitement of the nervous system has exhausted the energy that is required in the medulla for the maintenance of respiration and muscular tone during sleep.

The loss of rest is so seriously detrimental to health, that to prevent it by hygienic means is of great importance; and, besides, avoiding as far as possible the several causes of wakefulness just specified, bad sleepers should take heed to attend the following directions for their regimen, rather than resort too hastily to hypnotic drugs, which although sometimes useful and necessary as temporary expedients, lose their effect by habitual use, and produce other evil consequences which render their continuance improper.

Bad sleepers should make a regular practice of early rising. It may cost them some trial of strength at first, but if they would improve their sleep they must seek it at the natural time, and not late in the morning when the excitements of the day begin.

Their hours of meals and exercise should also be early and most regular, both in order to promote that state of health most conducive to ease and freedom from suffering, and also to secure the accomplishment of the process of digestion and consequent excretion or eructation before night, which is the proper period for repose. Exercise should be used as freely in the open air as the strength will permit without causing lasting fatigue, and if the strength does not bear walking or riding, driving or sitting out in the open air several hours in the day is an efficient means of promoting sleep, by gradually and gently fatiguing the senses by the continued operation of light, air and sound, while the organic energies are refreshed and invigorated by their salutary influence. As the hour of retirement for rest approaches, every description of exciting agency should be avoided.

The latest meal should be taken at least an hour before bedtime, and tea, coffee and all vegetable matters apt to generate gas, should be excluded from it.

Weak persons, and others under the influence of fatigue, may often advantageously take a little wine or alcoholic mixture at this meal; its operation, which counteracts the exhaustion and nervous excitement induced by weakness, being composing and hypnotic. All active exertion of body or mind should be carefully avoided at this time. Subjects of conversation or reading should be commonplace or tranquilizing, neither requiring much attention nor exciting to the feelings or imagination. The very preparation of undressing should be simplified as much as possible, and all superfluous items or general washing, etc.,

should be postponed until the following morning. Much might be said about the construction of the bed and its appendages, and the posture best suited for tranquil repose ; but this is not the place for such details, which may be comprised in the general direction that all is to be made as comfortable as possible, without relaxing by excessive softness or abundance of covering. A soft upper mattress of hair, or wool and hair, is always preferable to a feather bed, not only in being less relaxing, but also in its giving a more elastic and even support to the body and limbs, and prevent that sinking in of the body which fatigues a weak back by bending it.

The posture most easy for the person is on the right side, which affords to the two weightier organs, the liver and heart, support which prevents them from pressing on the hollower viscera.

A device which I have found to answer well in inducing sleep is founded on the attempt to imitate the mode of breathing of a person during sleep, by making the respirations, particularly the expirations, lower and more prolonged than usual, and giving to them somewhat of a sonorous character from the relaxed and, therefore, imperfectly open state of the glottis.

This often excites a feeling of drowsiness, probably by gently retarding the return of blood from the brain, and this drowsiness may soon end in sleep, but it frequently happens with this, as with all other voluntary attempts to procure sleep, that the continuance of the effort breaks the spell by the awakening efforts of excited attention, and this objection especially applies to the first attempt to practice such invocations to Morpheus. The expedient recommended by Dr. Franklin to restore sleep that has been broken, by rising and shaking the bed, with the view to change its air, is sometimes successful, particularly in hot weather.

The amount of sleep most conducive to health varies considerably with age, sex, and constitutional and habitual peculiarities. Infants pass the greater part of the day as well as the night in sleep ; and children up to the age of six years generally require at least twelve hours of repose, besides an hour or more in the middle of the day. At about this age the sleep at noon may be discontinued, but the night can hardly be abridged with advantage until about the tenth year, and then only to a moderate extent until the period of puberty, after which it is generally proper gradually to reduce the period of rest to nine or ten hours, and no further diminution is expedient until the cessation of growth, when another hour or two may be taken from it. The average amount of daily sleep beneficial in adult and middle ages may be stated at eight hours.

In more advanced life this extent of sleep is not less serviceable where it can be procured ; but at this period the capacity for sleep diminishes, and wakefulness or disturbed sleep is a common complaint of old age. Attention to the precautions before recommended will, however, often restore it, and even if they do not sleep, aged persons require an increased period of time in bed, for the sake of warmth and rest, which their reduced calorific and muscular powers render more necessary.

Females stand in need of more sleep, commonly, than males, and during pregnancy and lactation additional rest is especially demanded, to assist the

supplementary nutritive processes brought into operation in these conditions. In such cases, too, the loss of sleep is attended and followed by peculiarly injurious results, manifest especially in the nervous system, and general nutrition, in the form of mental derangement, impaired vision, deafness, paralysis, palpitation, convulsions, tremors, anorexia, wasting diarrhœa, etc. Under these circumstances, a chief object of the treatment will be to procure sleep, and in addition to regimenal means before suggested, nervous sedatives or hypnotics of the least depressing kind are required. Persons convalescent from acute diseases, or otherwise weakened and reduced, require and generally obtain more sleep than in ordinary health, and it is so efficient an influence in the promotion of recovery, that artificial means are sometimes properly used to procure it. So, likewise, those who use much active exertion need a longer period of repose than those who are sedentary; and the same rule is applicable to persons whose intellectual powers are much strained, who should also use such exercise as may maintain the balance and promote the return of sleep.

Salutary as is the operation of sleep in its due time and degree, it may prove injurious if indulged in to excess and at improper seasons. Too much sleep slackens the circulation, diminishes excretion and muscular nutrition, and causes general plethora or partial congestions, and in those disposed promotes the accumulation of fat. By inactivity it weakens the muscular and sensorial powers, and gives an ascendancy to the medullary function. Hence a tendency to spasmodic and other nervous disorders of the system, which may further declare themselves in fits of hysteria or even epilepsy. In persons liable to this class of disorders, a judicious abridgement of sleep is often very beneficial; and it is best effected by gradually establishing the habit of early rising. Undoubtedly the most fitting time for sleep is the night, and, although in these latitudes the nights are in summer too short and in the winter too long for the amount of needful repose, yet the more nearly this is assigned to the period when darkness and silence warn to rest, the better for the permanent comfort and well-being of the body. On the score of health, then, it is recommended that even adults should retire to rest, in summer especially, as many hours before midnight as can be spared after night closes, in order that they may be enabled to rise at or as soon after sunrise as they have had their proper complement of sleep. But, inasmuch as the usages of society and the business of life often make unavoidable demands on the night hours of many persons, the compromise of retiring one hour before midnight should be enjoined for the sake of health, and accompanied with an exhortation to early rising, enforced by a description of the refreshing and invigorating influences of the morning air, with all the exhilarating concomitants of light and sound.

EXCRETION.

The absolute necessity of sufficiency in the processes of excretion for the maintenance of health, has been made apparent by the numerous instances cited in the preceding pages, in which their failure has led to the production of disease; and although such instances commonly constitute such cases of disease as require the application of medicinal means, yet the regularity and com-

pletion of the process of elimination may be so far promoted by common regimenal measures as to deserve a place among hygienic elements. Depending, as excretion does, on the activity of the processes—of circulation, which regulates the supply of blood to the secretory organs; of respiration, which improves the properties of that blood by renewing its chief chemical agent, and of assimilation, which adds to its materials; of muscular contraction, which effects the expulsion of the excrementitious matter; and of sensation, which takes cognizance of the need of its evacuation—it might be anticipated that the proper performance of this office (excretion) will much depend on the vigorous condition of these several processes, which with it compose the sum of the general health.

Hence many of the hygienic measures that have been recommended as contributing to sustain these several processes, are likewise efficient in promoting that of excretion.

Thus a proper regulation of *food*, solid and liquid, and a regular use of *exercise*, are important means of favoring all the excretions; and the functions of the skin and kidneys, and, in less degree, those of the liver and intestines also, are influenced by *clothing, temperature, air and sleep*. It will be sufficient to indicate a few of the more available means which are found useful in regulating the actions of the *bowels, kidneys and skin* in health. No circumstance tends more to promote the regular action of the intestines, than the punctual habit of daily devoting a fixed and sufficient time to their evacuation. Medical writers have long insisted on the importance of punctuality in attention to this office; but they have not recognized the necessity of dedicating an amount of time sufficient for its proper completion, yet with persons of costive habit this is not of secondary consideration. In persons whose bowels act readily, an efficient peristaltic action forwards the feculent matter in consistence and quantity fitted for prompt and easy expulsion at the accustomed time; but with those of torpid bowels (and they constitute a very numerous class, even among healthy persons), the excrement is more solid and the intestinal movement more tardy, and instead of being all in the rectum ready for delivery at the appointed hour, more or less of it may still be lagging behind in the sigmoid flexure or even above it, and cannot be discharged by a momentary effort. Nor will violent straining, (which is, moreover, injurious in other respects), properly aid in the process.

Repeated gentle and sustained abdominal contractions, aided if necessary by kneading pressure, or friction downwards in the left iliac region, in the direction of the sigmoid flexure, with some variation in the position of the trunk, are the safest and most efficient means of accomplishing this object; but they require the sacrifice of a few minutes time, and if the end were not worth this sacrifice, I would not shock the delicacy of my readers by allusion to so disgusting a subject.

These expedients are more easy and natural, and less injurious than the use of enemata, of which even the simplest kind, if employed habitually, injure the tone of the bowel, and impair its natural action. Other means may be mentioned as serviceable in ordinary health to promote a regular and sufficient ac-

tion of the bowels, such as the use of brown or rye bread, instead of white; taking at night oat-meal porridge; white mustard seed, stewed prunes, tamarinds, baked apples, and the like, all of which act by adding either a mechanical or a chemical irritant to the feculant mass, and may prove objectionable by irritating too much and otherwise disordering the alimentary canal.

The same objection applies to the addition of toasted bacon to breakfast, and that of a quantity of fruit to dinner. A more harmless, and sometimes more efficacious expedient, is that of drinking a large draught of cold spring water, at first rising, which is useful for other purposes likewise.

“With some persons malt liquors promote the action of the bowels. A walk before breakfast for the more robust, or a walk or ride immediately after that meal for others, often contributes to the same end; and in other instances such exertions as particularly bring into action the abdominal and other muscles of the trunk, such as digging, or other occupations in gardening, prove more effectual. Lastly, we must not omit to mention the habitual use of gentle aperient medicines, as the safest and most efficacious means of securing an adequate intestinal action in persons whose sedentary occupations or other circumstances absolutely prevent their adopting more strictly hygienic measures for the accomplishment of the same purpose. Undoubtedly, it is preferable to avoid the constant use of medicine if dietic or regimenal management can be so conducted as to supersede it; but much observation has convinced me that this cannot always be effected, and then as a prophylactic or hygienic resource, a little daily pill is preferable to the practice of loading the stomach with indigestible matter with the object of stimulating the lower bowel. The excretion of *urine* is less generally an object of solicitude than that of *alvine* function; yet it is remarkable how usually persons as they advance in years have their attention drawn to it, often from experiencing the discomforts of its irregularity or deficiency, and such irregularities are undoubtedly an important element in a vast proportion of disease, whether serious or trivial. It would occupy too much time to advert at length to disordered excretion of urine here; in fact, the subject has been considered in almost every part of the present work; and it must suffice to mention a few common hygienic influences by which the urinary excretion may be promoted or rendered more free. The abundance of urine, and therefore usually its clearness and moderate specific gravity, will be generally proportioned to the amount of fluid ingesta; but the increase is more sure when fluid, especially water, pure, or with a very slight addition of vegetable or animal nutriment, is taken on an empty stomach. Thus, a large draught of spring water, drunk at first waking in the morning, or an hour before dinner, is almost surely followed by a free flow of clear urine.

The result is promoted by such moderate exercise as excites the hearts' action without causing free perspiration. Some kinds of exercise peculiarly augment the secretion of the kidneys, especially those bringing the loins into action, as gardening, and trotting on horseback; and these modes of exercise may therefore be recommended to those whose secretion is defective, especially those liable to lithuria; for by increasing the watery constituent of the urine, there is less risk of any deposit taking place in the urinary apparatus. But similar

means, if regularly used, are useful also in gouty and rheumatic habits; and they appear to establish an increased diminution of solid matter, as well as of water, by the kidneys; and in this respect their operation differs from that of medicinal diuretics, which, unless very judiciously administered, excite for the time, and leave the secreting power exhausted afterwards. This is the chief objection also to certain diuretic beverages in common use, but as temporary expedients they are useful; such as gin, Holland's, or whisky, diluted with water, spruce beer, imperial drink (water saturated with bi-tartrate of potass, sweetened and flavored), leek or onion-broth, barley water, linseed and tamarinds, Seltzer water, etc. Grapes, currants, and other ripe sub-acid fruits, also may be occasionally useful in the same way.

The regular evacuation of the bladder, when distended to a certain degree, is prompted by the sensation excited, but in very various degrees in different individuals; some either not feeling or resisting the want, and others yielding too frequently to its impulses. The latter extreme is too inconvenient, especially from its disturbing sleep at night; but the habit of too long retaining the urine may prove pernicious in various ways, formerly specified, and should therefore be carefully avoided. In circumstances interfering with a proper observance of this caution, its urgency may be diminished by limiting the amount of liquors taken, and by promoting the cutaneous excretion by warm clothing and external warmth.

The full purposes of the *perspiratory* secretion are not entirely known; but its uses are recognized—in evacuating from the superficial vessels superfluous water, acid, and oily matter, under the distending or exciting influence of prolonged heat or exertion, intending by its evaporation to cool the surface thus heated, and by its relaxing effect on the tissues to remove the irritation of distention or obstruction; and, by the same softening operation, to render the skin more pervious to the chemical action of the air on the blood, and to the vital influences reciprocated between the blood and the tissues.

The excretion of the *skin* has been mentioned to be materially influenced by *clothing, exercise, and temperature and air*, and these are the chief means by which it is variously affected in healthy persons.

Other hygienic measures for promoting the action of the skin are bathing, washing and friction.

The chief operation of all these agents is on the skin, as an instrument of circulation and secretion, and in proportion as they are extensively applied they may exercise an influence on the whole system.

Thus, warm bathing of the whole body, as it increases the amount and motion of the blood in the cutaneous vessels, and the perspiration from them diminishes the supply to internal organs, and consequently the amount of their secretions.

If continued long or repeated frequently, general weakness will result, the surface remaining in a relaxed state. The same objection does not apply to the occasional use of the warm bath, or the daily practice of washing the whole surface with tepid sponging or shower bath, followed by friction, and these are highly salutary means of keeping the skin in a free and active condition well

suited to persons of languid circulation. But in the majority of healthy subjects this object is better obtained by cold washing, and in the robust, even by cold bathing, in shower or plunge which indirectly excites the functions of the skin by constricting its vessels and thus throwing the blood on internal organs, and by impression on the incident nerves, causes the excitement of reaction, which soon restores the superficial circulation in redoubled force, with its concomitant redness and glow.

This reaction is much promoted by vigorous friction of the whole surface with coarse towels or horse-hair gloves, and this operates not only by stimulating the cutaneous vessels and glands, but also by the muscular exertion exciting the heart to stronger and more frequent contractions. For the same reason, other exercise, as in a brisk walk, is often useful. If after cold bathing the reaction is incomplete and the skin remains pallid, chilly and contracted, it may be inferred that the cold has been too long applied, and has permanently impaired the functions of the skin, and left the internal organs more or less contracted. Or if, after complete reaction, an unpleasant fatigue, languor, chilliness, headache, or other uncomfortable sensation remains, it is a proof that the cold and subsequent reaction have been too depressing or exhausting; in either of these cases tepid bathing or washing is to be preferred. The vapor bath, with shampooing and various aromatic and stimulant applications, although a powerful remedial agent in cases of disease (especially chronic rheumatism and its consequence), is too exhausting to be recommended as a means of preserving health.

A few general rules on the hygienics of sick persons will not inappropriately close this chapter. Patients laboring under acute disorders should be placed in large, dry and well ventilated apartments. The temperature of the room should be equable and moderate; the amount of light must be regulated by the character of the disease. When the air is contaminated by noxious exhalations, fumigations may be sometimes advantageously resorted to. If the room in which the patient is taken ill be small, badly ventilated or damp, he should be removed, if possible, into a larger one, free from these inconveniences, as the risks of moving, even in severe febrile affections, are less than is usually imagined.

Great cleanliness should be strictly maintained, and for this purpose the linen should be frequently changed; but not so as to fatigue the patient. It may be done even while the patient is sweating copiously and great comfort will result.

To effect this warm clothes, passed underneath the shirt, should envelop successively the legs, thighs, abdomen, chest, and even the neck, so that the arms alone will be momentarily exposed to the air. Patients should never be permitted to sleep on feather-beds without an intervening mattress. It is often necessary to employ auxiliary means to receive the excretions, impermeable cloths to protect the bed linen, and cushions to obviate the pressure on certain parts of the body.

The position of the bed should vary according to the the nature of the disease. The employment of suitable aliment and drinks in acute affections is of great importance, and adds materially to the comfort of the patient. There are

two extremes to be equally avoided—nourishing patients too much and not nourishing them enough.

Hippocrates thought it safer to err on the side of the excess, than for patients to observe total abstinence. In acute febrile affections you should observe a just medium. Prohibit all kinds of solid aliment, but permit the use of fluids slightly nutritious, such as farinaceous articles, light broths of veal and chicken, the juicy fruits, etc., when the febrile movement is not too high. In the low forms of fever, when the strength has to be supported, it is indispensable to nourish the patient, and severe adynamic symptoms may often be prevented by timely nourishment.

The injudicious use of food has the power, it has been remarked by a celebrated authority, of nourishing the disease and not the patient. It is of immense importance in all acute disorders that the excretions of the patient should be immediately removed. Perspiration chills the body; the urine and fecal matter already compromised, are disposed to speedy decomposition, and impart noxious qualities to the air. When involuntarily excreted, their contact with the body is positively injurious, by provoking eruptions, excretions and even sloughing.

In acute diseases, repose and quiet are indispensable. Sydenham thought that fever patients should be made to rise every day, and that doing so obviated the tendency to delirium. There is no doubt but that patients should be daily placed in an arm-chair, or on a bed, according to their strength, in order to allow their own bed to be made; if this cannot be done, they can be removed to another portion of their bed, whilst the necessary change is made. When a patient is too feeble to change his position in bed, it should be done for him frequently, it adds materially to his comfort, prevents the formation of sloughs and obviates the tendency to pulmonary congestion, so frequent in protracted fevers. Sleep is generally a favorable symptom in acute diseases. Every thing which by acting on the senses, or the *moral* of the patient will prevent it, should be obviated. From the same motives sleep should not be broken to administer medicines, without the necessity is urgent. Sleep may sometimes be induced in convalescence, by causing the patient to rise and re-adjusting his bed. Gentle friction with the fingers on some part of the body disposes to somnolency. The sensations, the emotions and intellectual faculties all demand, in a special manner, the attention of the physician.

The removal of all moral or mental circumstances, which either have produced or keep up the morbid condition, is important. Conversation should be banished from the sick chamber; when low it is annoying; when loud, fatiguing and exciting. The influence of the passions of the mind is so great that nothing should be neglected to give them a favorable turn. To this end the physician should obtain and deserve the confidence of the patient, (careful and great interest will frequently accomplish this,) and he should be careful that nothing in his speech should betray anxiety or uneasiness. Patients generally receive with satisfaction assurances of the successful termination of their complaint from their physician.

The fear of death adds materially to the danger in a majority of instances, and

"the physician" says Chomel, "who allows his patient to suspect the danger of his position, diminishes the prospects of his recovery." Sir H. Halford, in some judicious remarks on the duty of a physician, in withholding from, or communicating to, a patient the probable issue of a disease displaying mortal symptoms, says, "that the first duty of a physician is to protract the life of a patient by all practical means." The probability of a fatal issue, therefore, should be communicated to the friends, and, except under very peculiar circumstances, never to the patient.

In chronic diseases hygienics are of immense utility. Change of habitation and climate, voyages by land and sea, a sojourn at some fashionable watering place, etc., often succeed in restoring health when all other remedies fail.

PRACTICE OF MEDICINE.

CLASSIFICATION OF DISEASES.

Diseases have been classified by writers according to their fancy or convenience. First classified by Celsus, who associated those bearing to each other a general resemblance. The second classification was Coelus Aurelianus who divided them into acute and chronic. The third classification was founded on the locality, beginning with the head and proceeding to the chest, etc. A fourth, adopted by Boerhaave, was founded on the supposed causes of disease. I shall not notice all the plans of nosologists who have contended for special arrangements, but like those who have gone before, shall adopt the classification best suited to my purpose, which will be,

- 1st. Fevers and inflammation.
- 2d. Diseases of the sensitive system, brain, spinal marrow, nerves, and organs of sense.
- 3d. The Circulatory system of heart and blood vessels.
- 4th. The Alimentary—of stomach and bowels.
- 5th. The Respiratory, Pulmonary organs and their immediate extension.
- 6th. The Secretory—of the glandular apparatus.
- 7th. The Absorbent, Lacteals and Lymphatics.
- 8th. Perspiratory, external covering of the body.
- 9th. The Muscular—of the muscles and their appendages.
- 10th. The Osseous—of the bones and their connections.
- 11th. Generative and Urinary—of the organs subservient to these processes in both sexes.

We would, however, prefer the classification of disease according to tissues involved, but as several tissues are often involved in the same affection, this is impracticable. We, shall as far as possible, adhere to the classification given above and while not claiming perfection in our arrangement, we believe it is the one most convenient to students and practitioners.

FEVER.

There is no one derangement of the human system that has given rise to more discussion and theorizing than fever. It has been a matter of speculation among medical writers as far back as we can trace medical literature, and doubtless puzzled the brain of man since the first appearance of disease in the human race. We may agree on other diseases or derangements as to cause, effect, etc. but each system has a peculiar doctrine as to fever.

No derangement is so common as fever, none in which the non-professional are so little likely to be mistaken, and yet how difficult to define ! In fact no writer of the schools seems to have been satisfied with his own definition. The first theory of fever was that of the Greek school, promulgated by Hippocrates and supported by Galen. This theory we hold as correct, or rather as the foundation of a correct definition of fever. It was in substance that fever is an effort of nature to expel something hurtful from the body either ingenerated or introduced from without.

Hippocrates expressed it as a violent commotion in the system followed by an evacuation from the skin and kidneys with which the paroxysms terminated. He goes further, and ascribes the commotion to a fermentation, concoction or ebullition by which the noxious matter was separated from the sound humors, and the evacuation to a deposition or scum which such separation produces, or rather to the discharge of this morbid scum from the emunctories that open externally. This was the only theory taught or definition given of fever for a period of over three thousand years.

Paracelsus and Van Helmont, showing the same narrow-minded bigotry that characterizes their followers of to-day, attempted to obliterate the whole system of Hippocrates and Galen, and with solemn pomp condemned and burned the entire works of these old reformers. This doctrine of fever, however, blended itself with the dialect of the chemists, and though crushed to earth still lived, as great truths always will.

This theory of fever was maintained until its opponents claiming that agents given to increase the heat or assist nature, produced dangerous and fatal results, and to this hue and cry, no doubt holding up all the fatal cases that could be found thus treated, the world is indebted for the partial suppression of the practice founded upon this theory. The second theory of, or definition of, fever, was promulgated by Boerhaave, and which owing to the unfair means just mentioned, became so popular as to triumph over the Greek theory. His theory was that the blood was chemically changed ; that we had a crusty or sizey condition of the blood which, from its action upon the larger vessels, etc., produced fever, and his treatment was to introduce agents into the system to dissolve or neutralize this principle and thus cure fever.

We pass now to the third theory of fever, which was promulgated by Cullen, based upon the theory of Stahl and Hoffman.

Cullens' doctrine is that, "The remote causes are certain sedative powers applied to the nervous system, which diminishing the energy of the brain, thereby produce a debility in the whole of the functions, and particularly in the action of the extreme vessels. Such, however, is at the same time the nature of the animal economy, that this debility proves an indirect stimulus to the sanguiferous system ; hence, by the intervention of the cold stage, and spasm connected with it, the action of the heart and larger arteries is increased, and continues so, till it has the effect of restoring the energy of the brain, of extending this energy to the extreme vessels, of restoring therefore their action, and thereby especially overcoming the spasm affecting them, upon the removing of which the excretion of sweat, and other marks of the relaxation of excretories, take

place." And this is the accepted definition of fever among the regular practitioners of to-day.

This definition of Cullen's did not prove satisfactory to all in his school even, and, as a result, Dr. Brown's theory was promulgated, which is: "Man is an organized machine, endowed with a principle of excitability, or predisposition to excitement, by means of a great variety of stimuli, both external and internal, some of which are perpetually acting upon the machine; and hence the excitement which constitutes the life of the machine is maintained."

Excitability, therefore, is the nervous energy of Dr. Cullen, and like that is constantly varying in its accumulation and exhaustion; yet not like the nervous energy of Dr. Cullen, under the direction and guidance of a *vis conservatrix et medicatrix naturæ*, distinct from the matter of the organization itself, but passively exposed to the effect of such stimuli as it may chance to meet with, and necessarily yielding to their influence.

Upon this hypothesis, excitement is the vital flame, excitability the portion of fuel allotted to every man at his birth, and which, varying in every individual, is to serve him without any addition for the whole of his existence; while the stimuli, by which we are surrounded, are the different kinds of blasts by which the flame is kept up. If the fuel, or excitability, be made the most of, by a due temperature or mean rate of blasts or stimuli, the flame or excitement may be maintained for sixty or seventy years.

But its power of supporting a protracted flame may be weakened by having the blast either too high or too low. If too high, the fuel or excitability will, from the violence of the flame, be destroyed rapidly, and its power of prolonging the flame, be weakened directly, and to this state of the machine, Dr. Brown gave the name of indirect debility, or exhausted excitability. If the blasts, or stimuli, be below the mean rate, the fuel indeed will be but little expended, but it will become drier and more inflammable, and its power of prolonging the flame will be still more curtailed than in the former case; for half the blast that would be required to excite rapid destruction antecedently will be sufficient to excite the same effect now.

This state of the machine, therefore, the author of the hypothesis contradistinguished by the name of direct debility, or accumulated excitability. Upon these principles he founded the character and mode of treatment of all diseases. They consist of but two families, to which he gave the name of sthenic and asthenic; the former produced by accumulated excitability and marked by direct debility; the latter occasioned by exhausted excitability, and marked by indirect debility. The remedial plan is as simple as the arrangement. Bleeding, low diet, and purging, cure the sthenic diseases, and stimulants of various kinds and degrees, the asthenic. Fevers, like other diseases, are either sthenic or asthenic; they result from accumulated or exhausted excitability. Synocha, or inflammatory fever, belongs to the first division, and typhus to the second."

Other pathologists have advanced special doctrines, or definitions of fever, some claiming that inflammation and fever are identical, but all these may be met with the general answer that, though fever is commonly a symptom or sequel of inflammation, inflammation is not uncommonly a symptom or sequel

of fever. The fact that *post mortem* has shown inflammation of the brain, stomach, etc., in those who have died of disease in which fever is an attendant, does not prove that the fever originated in the inflamed organ. The same appearance may take place equally as an effect and as a cause. As it still remains a matter of doubt with the systematic writers, what part of the human system, or particular vessel, is first impressed by the morbid agent, I shall endeavor to show that the first impression is made upon the capillary vessels and nerves, in their terminating extremities, on the two tegumentary surfaces and organs, at their connection with the secerning arteries and secretory vessels.

And when reference is made to the capillary vessels and nerves, I wish it understood that the connections are included. But as there has been, and still exists, a diversity of opinion in relation to the first local impression made upon the system, it will be necessary, in establishing my position, to examine the natural emunctories that have been wisely established as outlets to guard and protect the system against the retention of effete matter in the circulating fluids.

By these outlets we find nature, under the influence of an inherent power, when the system is in the full enjoyment of health, throwing off everything that is foreign to the laws of life, while in fever those excretory outlets are arrested or perverted in their functions, and as the first impression made upon the system by any morbid agent is discoverable through the secretory and excretory organs, a cursory view of their offices, and the two systems that are liable to derangement, will be necessary for a clear understanding of the subject.

The body being covered with a tegumentary substance called the skin, through the pores of which the sensible and insensible transpiration pass, it will be seen that in a majority of attacks the functions of those emunctories are, to a greater or less extent, suspended or morbidly exalted. This fact, if there were no other, affords at least presumptive evidence that the first seat of this disease will be found upon their extremities. But the anatomy of the tegumentary system demonstrates the final termination of the nerves and capillary vessels, with the branches of the arteries, which exhibit the connection of the secretory follicles, that separate from the fluids the sensible or insensible exhalations.

When examined by a microscope, it appears as though these emunctories are composed of the extremes of the nervous and circulating systems, and that in their ramifications their functions are dependent upon their healthy condition.

The internal tegumentary system is the mucous membrane, lining the internal organs, and on their surface we find the same arrangement of the two systems in their terminations, and, in a majority of case, in the initial stages of fever the functions are alike deranged.

The lungs, having similar offices and endowments, are observed to suffer in like manner; and, indeed, when we confine ourselves to close observation, the same may be said of the functions of the liver, the kidneys, and of all the secretory organs.

From their arrangement, and from what we observe in health and in disease, it is a fair inference that the changes produced by morbid agents are first upon these two systems. From some causes, the internal nerves and capillaries receive

the shock, and from others the external extremes become the subjects of the impression. Consequently it is evident that the two systems are the first deranged.

This being uniformly the case, it is of but little importance in the cure whether the morbid agent be heat, cold, or marsh malaria. But to say that the nervous system is the first in fault, in all the forms of fever, would be absurd, and the same remark may be applied to the charges against the circulating system.

The mistaken notions of the humoralists, and their antagonists, in my opinion, derive their origin from a misapprehension of the dependencies of the nervous system and the vital circulating fluid in their intimate connections.

The brain, with all the other parts of the system, is formed and sustained from this vital fluid, which is declared to be the "life of the animal creation;" and from the facts observed in the organization of man, it is already manifest, from the different degrees of sensibility and irritability in the tissues. It is true the nervous system possesses a greater degree of sensibility, but it must not be inferred that the balance of the subordinate systems is wholly dependent upon the nerves for their sensibility or susceptibility. Such an inference would leave these systems without the capacity to act or be acted upon, and would assuredly destroy the principles of life contained in the constituent elements of the blood, which constituent elements give to each tissue or organ the peculiar property for the purpose of endowing the parts with the energy requisite to the performance of their functions. For the purpose, therefore, of contrasting the acknowledged causes and effects, we will examine some of the more prominent, that act deleteriously upon the human system. The first are recrementitious substances retained in the circulating fluids—such as checked perspiration, bile and uric acid. These recrementitious fluids, when retained in the circulation, frequently give rise to disease, by establishing irritation. Checked perspiration is also most frequently acknowledged to be a secondary consequence; so, also, is bile and uric acid.

But the influence of such causes is calculated to establish irritation and vascular action; and checked perspiration not unfrequently deranges the functions of the kidneys by the vicarious action induced by these organs which produces exhaustion.

The second cause to which the writers refer is irritation produced by indigestible substances, or by worms, etc., generated within the body. The third cause is attributed to deleterious substances floating in the air, or the variable condition of the atmosphere, such as miasmata, noxious gases, heat, cold, electricity, humidity and contagious or mechanical causes.

That the above causes are calculated to produce disease, no one doubts, but are there not many reasons for believing that an excess of these causes is harmless, unless too long continued in action, or when the system has been previously weakened by antecedent causes. In health we find the human system is capable of resisting heat and cold, in a wonderful degree. The fire-king at a temperature sufficient to roast a beef-steak, is enabled to withstand the heat without apparent injury, and mankind are enabled to approach the other extreme, and brave the cold of the frigid zone, where mercury is frozen, without injurious

consequences. But if the system had been previously debilitated, either of the above causes would have established morbid action.

The effect of cold or heat too long continued, is well understood by the profession, and in their extremes or sudden vicissitudes, is admitted as a fruitful predisposing cause of fever in some, and in others, an exciting one. In many of the other admitted causes, the constituents are not understood, nor is the channel known by which they enter, although it is supposed that it is by inhalation of animalculi or by being incorporated with the saliva, and taken into the stomach. Either of which must make a direct impression, to establish morbid action. If this be the case, is it not probable that many of these agents are condensed upon the cutaneous surface, and make a direct impression upon the nerves and capillary vessels through the external absorbents. From what I have observed in marshy districts, I believe those agents gain admittance through inhalation as well as by absorption, both externally and internally; namely, through the salivary glands, and if not thrown off enters the circulation by absorption, but I do not believe it is necessary for the morbid agent to become incorporated in the circulating fluids, and thereby change the constituents of the blood before the poison is capable of establishing morbid action. Nor is it consistent with the physiological laws observable in the movements of the economy; for on being impressed with a medicinal agent, we find the vital action making an effort to expel the offending cause by the outlets provided for that purpose; and through these natural outlets deleterious agents are eliminated and thrown off from the system in such a hurried manner that it is impossible that they should have been conveyed into the circulating mass, and passed through the heart before morbid vascular action was established. To admit in all instances the incorporation of such materials with the blood, would be presuming that nature had not been provided for in the way of protection and defense.

That many articles are absorbed, and conveyed into the fluids cannot be doubted; but is it not reasonable to suppose that the various deleterious agents inhaled and absorbed are only permitted to enter that part of the circulating system which conveys the limpid or white fluid? as those capillary vessels appear to be possessed of an inherent power to resist the entrance of any material that is incompatible with the well being of the economy, until the vital forces are enfeebled or overcome by the long continued application of morbid agents, or some violent cause. After which the entire circulating fluid becomes contaminated by the virus which has entered the system. Hence morbid vascular action is frequently established giving rise to fever, without the entrance of the morbid agent into the red part of the circulating fluid as we see that the force of some of the noxious gases and poisons is sufficient to destroy life, when brought into contact with the respiratory mucous membrane, or any part of the vascular system. In many cases the effect is too sudden to admit of the belief of its absorption. Yet many of these deleterious agents when absorbed in a diluted form, are completely under the control of the vital forces of the system. In some marshy districts the miasm is so abundant as to derange the capillary vessels and nerves, and in some constitutions, to establish fever of an intermit-

tent or remittent type in a few days ; whilst in others, the effect of the malaria is successfully resisted and thrown off by the vital action of the system, notwithstanding the constitution is enfeebled by the continued application of the miasmata.

In such cases, notwithstanding the efforts of the vital power of the system, the aspect of the countenance gradually assumes a sallow hue, until in some the capillary vessels and nerves are so far overcome, that dropsy is the result ; whilst in others in a more southern latitude, by the increase of malaria and the changes in temperature, we have those violent attacks of yellow and congestive fevers. As it has been shown that the capillary vessels and nervous terminations are so intimately connected, it will be seen that whatever deranges the one, will simultaneously derange the other. This fact is abundantly exemplified in cases of fright, or cold water suddenly douched upon the lower extremities, each acting upon the bowels through contiguous sympathies, and also in abrasions of the surface produced by the explosion of steam, from the shock of which we find symptoms of compression of the brain. Hence, I infer, that in proportion as the qualities of the poison are obnoxious to those sentinels of life posted externally and internally, so is the shock to the system, inducing the overthrow of the functions of the entire economy.

These terminating extremes of the nerves and capillaries of the circulating systems may be properly denominated sentinels, to warn us of the gathering clouds of disease, which are first manifested in the change produced upon them and from their angry appearance, we are induced to furl our sails and prepare for the tempest that is fast approaching. But these are not the only important services of these little sentinels. The evidence of returning health, the effect of the remedial agents, their assistance in ejecting from the system the offending cause, are among the objects that render them worthy the closest attention of the profession.

If we examine the action of the economy under the influence of lobelia, we find that as soon as the agent is brought in contact with these guardian vessels, the physiological laws of the parts are increased by the stimulant applied to the vessels and nerves, which enables nature to free herself either by ejecting from the stomach, or hurrying through the alimentary canal, the cause of the difficulty.

This speedy response of nature will not admit of the belief in the absorption of the lobelia into the general circulation before its effect is produced, but by the impression it makes upon those vessels establishes exalted action, and thereby frees the system from the offending cause, so it may safely be inferred some morbid agents are too powerful in their action to admit of absorption, but perhaps if diluted, or of a less offensive quality, they may be absorbed to the extent as before stated, and when thus far taken into the circulation, may establish fever from irritation or congestion.

"Any cause," says Prof. Wood, "capable of inducing irritation in any considerable number of the organs, or over any considerable portion of the body, either by direct impression, or by the reaction which follows depression, or by

the super-excitement in certain parts resulting from depression in others, may occasion universal derangement, and consequently fever."

Professor Eberle says :

The causes of fever are generally divided by pathologists into two varieties, the predisposing and the exciting. They are all those external and internal causes which tend to lessen the power of vital resistance to the influence of morbid agents. The latter are those causes which excite actual disease by the deleterious or irritating impressions which they make on the animal system. There exists, however, no absolute difference in the nature or character of these two varieties of morbid causes.

The same agent or circumstances may manifest its influence on the animal economy either as a *predisposing* or exciting cause of fever, according to the degree of intensity with which it acts, or the *previous condition of the system*.

Hence it is admitted that in proportion to the force of the cause applied to the system, so is the response either for weal or for woe, and we find that it is the received opinion that any cause predisposing in one may be an exciting cause to morbid action in another. Of most of the causes assigned by the writers we know but little, except from the localities where the malaria is found to prevail. We suppose them a deleterious something conveyed in the atmosphere, and generated by the influence of heat and moisture upon animal and vegetable matter. But it has been admitted that a cause with sufficient force to excite a morbid action by direct application or absorption has, in like manner, the power to impair the animal functions and to predispose one and excite another, and *vice versa*.

This being clear, it will be seen *that the tendency of the viscera and fluids to gravitate*, with the altered respiratory movements, are fruitful, predisposing and exciting causes of febrile action ; hence the attacks of fever do not all commence with diminished secretion of the skin and alimentary canal, though the cause may be the same ; which is owing to the intensity of the cause, and the amount of irritation or congestion of the capillary vessels, as was manifest in the two orders of attack of that frightful malady, the cholera. The force of the first was expended upon the extremes of the capillary vessels and nerves.

In the second, the force was thrown upon the brain, which weakened the action of the heart, and produced semi-stagnation in the capillary vessels. In the former, the nervous twitching and spasmodic cramps, with profuse perspiration, were present from the commencement to the close ; in the latter, we had also profuse perspiration, or an effusion upon the external skin and internal mucous membranes, frequently terminating fatally without spasms. In some cases both sets of symptoms appeared to be moving conjointly.

So I infer, in many cases of fever, owing to the deranged condition of the nerves and engorged capillary vessels and nerves that are essentially and primarily disordered. The first manifestation is suppressed or exalted action of the secretory vessels that are dependent upon the extreme terminations of the capillaries. In like manner the first mark of convalescence is manifested in the terminating branches of the two tegumentary systems by the change in the secretions. But whether the nerves are the first or the second link in the chain of

morbid action, it has not been ascertained ; and it would be of little consequence in a practical point, if it were, as the relations of the two systems are so blended, that whatever disturbs the extremes of one deranges the other ; and, in like manner, whatever changes the quality of the blood, impairs the brain in its healthful functions, and entails a similar depression or exalted action upon the heart and arteries. So it seems that the extremes of these two systems and centres reciprocate in health and in disease.

These systems are, therefore, the seat of primary irritation, whether it be from debility or congestion, from which arises morbid vascular action. Hence the opinion of some of the writers, that fever is a universal malady ; but it is obvious that the entire organism could not be in a state of disease, yet the functions may be more or less deranged through the influence of the morbid vascular action established from the derangement in the extremes or centres.

The causes, therefore, whether chemical or mechanical, are equally liable to establish fever, and, it seems to me, from the admitted facts, that one of the primary causes has been overlooked thus far.

In the laborious search after causes, the liability of the viscera of the abdomen and the fluids to gravitate, with their influence upon the respiratory movements, upon the blood, and upon the general system, have been misapprehended by the profession. The anatomy of the organs and of the surrounding parietes, which are endowed by nature with a capacity to perform certain mechanical functions, clearly demonstrates their importance, and, if we look at the liability to local irritation upon the root of the mesentery, established by gravitation, we cannot but ask, What cause is better calculated to predispose or excite fever than the misplacement of these organs ? Consequently, the direct cause of febrile disease, with a large class of the diseases to which we are subject, may be traced to such displacement.

In the illustration of this position, we will suppose a case where the individual by too long standing becomes fatigued, the muscular system exhausted, and the small intestines having lost their natural support, gravitate to the true pelvic cavity. Now, what part is put upon the stretch ? Is it not the root of the mesentery ? And is this part not abundantly supplied with blood-vessels, nerves, glands, and secretory vessels ?

What cause is, then, better calculated to establish a morbid vascular excitement in the capillary system and nerves ? Again, if the first link in the chain of morbid action is discovered in the nerves, as contended for by some, have we not an irritating impression ready to be conveyed sympathetically to the entire system by a primary focus of irritation ? And as it is known that the nervous and vascular systems are so immediately connected in every part of the body where these two systems are brought into a morbid condition—as they manifestly must be—by the displaced condition of the abdominal viscera, what is better calculated to produce fever than such displacement and weight upon the mesenteric blood-vessels and nerves ? It is evident, then, from the symptoms and character of the disease, that fevers depend upon a morbid action, commencing in the capillary vessels and terminating extremities of the nerves, or at their centres, giving rise to an accelerated action of the heart and arteries. Can it then be doubted

that the irritation is produced from the weight, so far, at least, as the capillary system and nerves are concerned, and that the focal point from which the morbid vascular action is established in functional and inflammatory fevers, is the consequence of this deranged condition? Look at the mental and muscular languor—the pains in the loins and lower extremities—the morbid sensibility to low temperature—the irritableness of the system, and the desponding weakness of the intellectual powers, so universal in febrile disease, and ask, Is not this unequivocal evidence of the prevailing derangement of the capillary vessels and nerves of the abdomen? Furthermore, look at the influence of the depressed condition of the abdominal contents upon the action of the diaphragm, with the loss of power in the muscles subservient to respiration, and the effects produced upon the blood, which leaves a superabundance of carbonic acid that is carried to the brain, and produces the train of diseases so fully described by systematic writers from a weakened action of the heart. Then contemplate the effect of the black blood upon the brain and its influence upon the heart, and ask if it is not more than probable that the cause of fever is connected with local irritation at the root of the mesentery, and with the obstructed blood-vessels, and the consequent congestion of the capillaries from obstruction, and the tendency of the fluids to gravitate?

From the history of the causes of febrile disease and their effect upon the animal economy, with the power of the organs to resist the surrounding causes so long as the general harmony is preserved, and with the symptoms of diminished or increased action of the exhalents and secretory organs which terminate upon the internal and external surface, it is evident that the febrile agents uniformly derange the functions of the two systems by establishing an accelerated morbid action, or a diminished action, amounting to the same morbid results.

In the former, the disease is called into action by an agent of sufficient power to derange the action of the two systems, giving rise to violent reaction, frequently of a malignant character. In the latter order of attacks, the system is exhausted in struggling with a distinct cause, or fixed point of irritation, until vital resistance is overcome and morbid action established—constituting the grade of fever called typhus, or typhoid as it is observed in the initial state. In the premonitory stages, we have various symptoms, such as loss of appetite, a furred or smooth tongue, disturbed sleep, with a harsh, dry skin, irregular bowels, with lassitude, pains in the bones and extremities, slight headache, feelings of heat and cold, with many anomalous symptoms.

By examining the symptoms as presented by the patient, it will be found that the altered condition of the secretory system, with the morbid sensibilities that are manifest, and the derangement of the digestive organs, heart and arteries, have been produced from an impression made upon the vascular or nervous system; whilst in some, perhaps from the same cause, the nervous symptoms take the lead of vascular action, and in others, the two systems are simultaneously deranged, which brings on nervous and vascular action conjointly, thus making the compound order of fever referred to by the writers. But of the symptoms referred to, no one is so uniform as the diminished or exalted actions observable in the emunctories, which establishes the fact that the two systems, at their

extremes or centres, are invariably the first deranged and the first to show the returning signs of health. By these convictions, my practice for twenty years has been governed, and has resulted in treating almost every grade of fever with more than usual success. After a conviction of the truth of the theory, my practice was simplified from the diagnosis being easily made out by the altered conditions of the secretions of the two tegumentary systems which freed me from the hap-hazard practice so frequently met with. To be skilled in diagnosis requires close and persevering observation, aided by a correct knowledge of anatomy, physiology, and the symptoms arising from the pathological condition of the organism, taken in connection with the age, temperament, climate, habits, hereditary predisposition, and character of the predisposing or exciting causes.

Having thus given a brief outline of cause and effect, I now proceed to the doctrines in relation to the character of febrile disease.

1st. Fever is not a disease, but a condition of imperfect reaction, a salutary effort of nature to eliminate or repair; an effort to free the system of some morbid agent.

2d. The first part impressed by the febrile agent, is that of the capillaries in some, and the nerves in others, or the two conjointly, either of which affect the other simultaneously.

3d. The morbid vascular action may be established by a depressed or accelerated movement of the two systems, from direct irritation applied either chemically or mechanically.

4th. The morbid causes act upon the two extremes or centres through the external or internal surface, and are conveyed to the entire system by a morbid molecular action, which extends to the entire system, through the capillary vessels, or sympathetically by the nerves.

5th. The remote and exciting cause of fever is liable to produce congestion, irritation or inflammation.

6th. Loss of balance between the capillary terminations upon the two tegumentary systems, by local determinations of the blood, is one of the strongest characteristics of fever, which is manifest in the initial stages by the altered functions manifested by chilly sensations and changes in the secretions.

7th. Morbid agents are not permitted to enter the general circulating mass of the fluids until the vital force is overcome, farther than the vessels that convey the limpid fluid, and they are frequently rejected by nature at one of the provisional outlets.

Having thus given a summary of the observations collected from medical authors, clinical pursuits, and post-mortem examinations, in relation to the causes and effects of febrile disease, with my convictions as to the part of the system first impressed, and the universal symptoms, observable in all, of the altered condition of the secretions of the two tegumentary systems, I will now proceed to the classification of fevers, and for convenience I shall divide them into two classes—idiopathic and symptomatic. To the first belong all that class of fevers arising from malaria, miasma inhaled into the lungs or taken into the stomach through the saliva. To the second, or symptomatic, all which arise from disease or local injury to some part.

IDIOPATHIC FEVER.

CAUSES OF FEVERS.

The causes of fever are either predisposing or exciting. Any thing that debilitates or impairs the tone and existing power of the nervous or muscular system, may be denominated a predisposing cause of disease, as excessive physical or mental exertion, protracted grief, anxiety and fear, chagrin, disappointment, ill-ventilated abodes, improper food, insufficient clothing, over-indulgence, filth, etc. The exciting causes induce fever by a direct impression, as miasmata, contagious and epidemic effluvia, noxious gases, vicissitude of temperature, atmospheric and electrical influences. The exciting causes do not operate so as to produce fever, unless the system is prepared or rendered susceptible to their influence by debility or some other predisposing cause.

Hence the importance of sound physical culture, a rigid avoidance of all those things which can impair the normal integrity of the organism, a proper system of physical education, a correct system of dietetics. Idiopathic fevers have been classified under the following general divisions: *Ephemeral fever*—those which arise from slight temporary causes, and which terminate spontaneously when the exciting cause is withdrawn. *Malarial fever*, originating in malaria, a specific form of disease. *Intermittent, remittent, continued and eruptive fevers*. In these fevers there are certain peculiar characteristics, which distinguish them respectively from all other maladies. But we never find two cases of the same type running precisely the same course, or presenting the same symptoms. Climate, age, sex, temperament, habits, etc., modify the character of each case.

The course of a fever varies during its progress; consequently there are some arbitrary divisions spoken of, but which by no means can be relied on; for some fevers run their course without the supervention of these stages.

They are as follows: the *forming stage, cold stage, hot stage, sweating stage collapse*. This is merely artificial, facilitates description.

CRITICAL DAYS

Are those in which a fever always has a tendency either to abate or become exacerbated, and were first observed by Hippocrates, and since have been fully shown to exist. According to Hippocrates, the critical days are the 3d, 5th, 7th, 9th, 11th, 14th, 17th and 20th, or, as some commentators declare the 21st, and since have been added the 27th, 35th and 42d days. The vigor of our practice is rather unfavorable to the clear manifestation of these crises.

EPHEMERAL FEVER.

Ephemeral fever is characterized by *increased frequency and strength of pulse, with heat of skin, headache, thirst, and white, excited tongue; terminating in perspiration generally within twenty-four hours*.

It is of frequent occurrence in this country, and is the slightest as well as simplest of all primary febrile disorders, and is so named from its seldom lasting longer than a single diurnal revolution.

Causes.—It is often difficult to discover any unequivocal cause for an attack of ephemeral fever.

It affects chiefly children and young persons, and frequently seems to be excited by the atmospheric vicissitudes during the irregular weather of the spring months in temperate climates. Excessive muscular and mental exertion, from prolonged exercise, or intense study; exposure to sun, the intemperate use of alcoholic drinks; disorder of the digestive organs, from repletion, or the nature of the ingesta or congestion of the liver, or a vitiated condition of the secretions of the *primæ viæ*, are all capable of producing an attack. The febrile condition, often excited in puerperal women on the first secretion of milk, has, by most writers, been classed under this head.

Symptoms.—In the acuter form of ephemeral fever the invasion is generally sudden, the attack commencing with a chill, but in mild cases there are lassitude, yawnings, with a feeling of irritation, or excitement. These symptoms, or the initial chill when occurring, are soon succeeded by heat of skin and cephalalgia. The face is flushed, and animated, but the expression is natural; the pulse is frequent, strong and full; there is frequently pain in the small of the back, with a sense of great weariness and soreness in the limbs, the thirst is intense; there is no appetite; the tongue is white; the papillæ enlarged, the mouth is dry, with a bad taste, and the urine scanty and high colored. The skin, though hot, is usually soft. In children and in some women when the attack is severe, slight delirium may supervene for a short time. Exploration of the chest and abdomen discovers no lesion of the contained organs. These symptoms with restlessness, languor, want of sleep, and general uneasiness, having lasted for six, twelve or eighteen hours, the fever begins to diminish; the skin becomes moist; the urine more copious, and depositing a sediment, and the free perspiration occurring, the attack subsides within twenty-four hours, though occasionally it continues for several days, assuming the characters and type of *Inflammatory fever*. Sometimes the patient becomes listless and feverish on the following day; does not feel disposed to quit his bed; and passes an uncomfortable day, with slight febrile exacerbation towards evening. After a good night's rest, however, he usually awakens refreshed and well.

Diagnosis. It is often extremely difficult to decide, at the outset of an attack, whether it is a case of ephemeral, periodic, or continued fever. The absence or presence of the causes just enumerated, may assist our inquiry. Whilst the non-occurrence or insignificance of the initial chill, and the continuation of the fever beyond six or eight hours, will often enable one to distinguish it from intermittent fever; the amount of vascular excitement, the slight depression of the nervous powers, and the very transient duration of the premonitory symptoms, will serve to distinguish it from the more serious varieties of fever.

Prognosis. The prognosis is of course favorable, but it should be borne in mind that sometimes the disorder is prolonged beyond the diurnal period and assumes a more serious character.

Treatment.—Confinement to bed, abstinence from food, and demulcent drinks are often all that is necessary for an attack of ephemeral fever, whose

R—Fld. ext. Asclepias	22
“ “ Serpentaria.....	SS

R—Fld. ext. Populus Trem.....	22
“ “ Hydrastis Can.....	13
“ “ Cornus Florida.....	10
Holland Gin.....	

MALARIAL FEVER.

Of all fevers this is the most extensively known, and vastly prevalent in our country, and it would seem that there are some indispensable conditions necessary to the development of this fever—such as an elevated temperature, decaying organic matter for supplying the material for the generation of this poisonous agent, whatever it may be; surface water which impregnates the air with vapor, promoting those chemical actions in certain soils, generates malarious exhalations, favors decomposition of a luxurious vegetation, produces animalculæ or microscopic plants; and thorough evaporation and condensation produces electrical and chemical changes. In sections of country where this marsh or paludal poison exists in a high degree, we have an imperfect physical development, an engorgement of the abdominal viscera, more especially the spleen; general inertia and torpor. All the physical, intellectual, and emotional faculties are depressed from the action of the poison. If the atmosphere holds a large quantity of the specific poison, a short time may elapse before the disease is developed; if the quantity is smaller it will take a longer period to excite the malarial action. If the fever is once established it may assume any one of the various types usually observed. If the atmosphere is strongly saturated with miasm the most trifling exposure to vicissitudes of temperature or exhausting exercise will develop true intermittent fever. If there is less malaria in the atmosphere, but other causes combine with it to derange the ordinary operations of the different organs, the disease has less of a chill and more of the fever. If the amount of malaria is still smaller, there may be only a slight remission, no intermission of the fever.

If the malaria exists in a greater or less degree, aided by other causes of disease, the remission may be scarcely perceptible, and then the case may be considered a continued fever.

If these various forms of malarious fever are improperly treated or tampered with they may merge into a low form of typhoid; and if the patient is greatly prostrated or exhausted by any cause, we may have it assuming a congestive form.

INTERMITTENT FEVER.

This fever consists of a succession of paroxysms, between each of which there is a distinct intermission, or subsidence of the febrile stage, called *apyrexia*. The period from the beginning of one paroxysm to the beginning of another, is called the *interval*; and that from the end of one to the beginning of another the *intermission*. The paroxysm recurring daily, the intermittent is called *quotidian*, every other day, *tertian*, and when the attack reverts only once in three days it is called *quartan*. The attacks are said to recur sometimes much more seldom, *e. g.* once a year. I am convinced that the disease having ceased, has a tendency to reappear on the 8th, 15th, and 22d of its cessation, as well as semi-annually, or annually. The types are sometimes complicated. There may be, for instance, the double tertian with two paroxysms, every other day; or with a paroxysm every day the alternate paroxysms corresponding. These complications are rare. Of all the types, the tertian is most frequent, and the quotidian next. The quartan most frequently arises from neglect or ill management of the other varieties. Commonly the quotidian occurs in the morning, the tertian at noon, and the quartan in the evening. Each paroxysm is divided into the *cold*, *hot* and *sweating* stages.

THE COLD STAGE

Supervenes by the extremities feeling cold and contracted; the surface pale and shrunken, rough; diminished sensibility; a sensation of cold along the spine, which diffuses itself over the whole body; then tremors, chattering of the teeth, nails purple, the skin the appearance of goose flesh; respiration labored, rapid and imperfect, oppression over the region of the heart, countenance pale, leaden earthy or livid, shrunken, and expressive of anguish, sometimes vomiting, with urgent thirst, and frequently copious discharges of pellucid urine. The mind is also irritable and childish. When the natural powers are feeble, or the force of the attack is overwhelming, the blood determined upon the internal organs remains. The cold stage having continued from half an hour to an hour, or sometimes longer, reaction succeeds, inducing the

HOT STAGE,

Hot surface, flushed face, violent headache, anxiety, stomach generally disordered, bowels unmoved, urine red. Pulse slowly becomes voluminous and vehement. This state continuing from three to twelve hours, the

SWEATING STAGE

Supervenes with great relief. The functions are restored to a state comparatively healthy. The urine, in the former stage clear and red, is now a little turbid, and deposits a whitish sediment, unless a crisis is about to take place, when the sediment is lateritious, or brick dust like.

DURATION.

Twelve hours are given as the ordinary duration of a tertian, though it may extend to eighteen. Each of the stages has sometimes been absent. Sweating has been substituted by discharge from the kidneys. All the stages of a tertian are more severe than those of a quotidian. The quartan is in severity like the tertian, but is distinguished for slightness of perspiration. The case has sometimes been restricted to one part of the system—the limbs, for instance.

Intermittents are sometimes masked by other diseases, which fact it is of importance to detect.

SYMPTOMS OF THE CONGESTIVE FORM.

Coming on with debility, the chill is either violent for a short time, or is very slight, or is alternated with feverish flushes, or very speedily heavy congestion supervenes in one or more viscera. Such an attack is easily followed spontaneously by a normal hot or febrile stage. Continuing from six to eighteen hours, the coldness is succeeded by clammy or dewy perspiration.

The intermission is imperfect, and the succeeding paroxysm appears at an earlier hour. The pulse is nearly extinct, or low, hobbling, full and compressible, the tongue moist and milky, skin cold and damp, with sometimes a very unequal temperature. The engorgement of the brain and lungs occasionally amounts to apoplexy. Cases occur in which there is little consciousness of danger, and little apparent suffering, and in which the patient may continue to walk about the house, that are prone to terminate suddenly in a swoon. Reaction, however, does sometimes take place in force sufficient to accomplish a recovery. In other instances the force of the disease seems to be expended on the *primæ viæ*. Here there is great gastric disorder, jacitation, a moist tongue, with a disposition to syncope. At times, without any chill, fever or prominent symptom, the patient is seized with meteorism, copious discharges from the bowels, sometimes emesis of a thin turbid fluid, and occasionally cramps of the muscles. Coming on in the same way, but without disturbance of the alimentary canal there may take place an excessive and debilitating cold sweat. In all these cases reaction is rare, but taking place, if moderate, it produces a low, congestive fever. If it be forcible, the fever is of a higher grade, and there is a peculiar determination to the brain.

THE GASTRIC VARIETY.

The majority of our autumnal intermittents are of this character; they are attended with strong marks of irritating matters in the *primæ viæ*; there is nausea, bilious vomiting, bitter taste, weight and fullness in the epigastrium, great pain in the forehead; foul tongue, quivering of the under lip; countenance and white of the eyes tinged with yellow; urgent desire for acid drinks.

MALIGNANT INTERMITTENTS.

Rapid in their course—sweat, in the third stage, generally very copious and fetid; hæmorrhages from the nose, bowels, gums, etc.; petechia; and other symptoms denoting malignity.

APYREXIA.

During the apyrexia the pulse is not right, and there is disorder of the alimentary canal. Indeed all the secretions and excretions are vitiated. Mind and body are both deficient in tone.

The apyrexia is marked also by sallowness of complexion, uncomfortable feelings in the hypochondria, or head, with an increased sensibility to cold.

In the graver varieties the apyrexial disorders are still greater, and the tendency of one paroxysm to encroach on another, leads to the formation of remittent or of low continued fever.

CAUSES.

Remote—Marsh Miasmata.—The decomposition of vegetable matter by the aid of solar heat and moisture, is the only condition necessary to develop the morbid principle.

Exciting, and not, as has been supposed, predisposing causes also, are extreme heat of the atmosphere, indiscretions in diet, accumulations of bile, etc.

Confounding intermittent with hectic, some of the late writers attribute it to a variety of local irritations. It occurs at times as an epidemic; and so occurring, is apt to be more malignant, or mixed and ambiguous in character, requiring, therefore, a close diagnosis.

No age is exempt.

DIAGNOSIS.

The intermission is the most distinctive trait. The time of the year, exposure of the individual to miasma, and the symptoms of a developed attack, will assist in the diagnosis. In pathology it most resembles the *remittent*, but in external physiognomy, hectic fever. Intermittent and hectic thus differ:

1st The paroxysms of hectic want that agony in the spine and limbs, so characteristic of intermittent.

2d. The paroxysms of hectic are seldom uniform for any number of days in succession, and after a short time, may come on at any hour of the day or night. Two paroxysms occur mostly in the twenty-four hours.

3d. The paroxysm of hectic is often destitute of the chilly and sometimes of the other stages.

4th The sweating stage of hectic does not always afford relief; on the contrary, chills and flushes may come and go at the same time.

5th. The flush of the cheek in the hot stage of hectic, is circumscribed and peculiar.

There is no headache, but the joints of the lower extremities, apt after a time to be swollen, become in the hot stage extremely painful.

6th. The pulse in hectic does not subside with the paroxysm, and in every respect is the apyrexia less complete.

7th. The tongue in hectic is clean, florid and polished; in intermittents, is covered with a whitish or yellowish fur.

8th. The alimentary canal is healthy in hectic, but the reverse in remittent.

9th. The urine in hectic is usually turbid during the paroxysm, and clear in the intermission, but reversely in intermittent.

10th. The mind in hectic is cheerful, while it is the opposite in intermittent.

PROGNOSIS.

Tertian is the most manageable type, the quotidian being apt to degenerate into remittent or continued fever. Favorable signs are a complete chill, which foretells an efficient reaction; the retardation of the paroxysm; cleaning of the tongue; bilious or dark, tarry and offensive stools, lateritious sediment in the urine; and scabby eruptions about the mouth. The unfavorable signs, are the premature appearance of the paroxysms, and complication with other disease. The case will be more intractable also in proportion to its duration, which results as well from the force of habit, as from the disorders of the chylopoietic and other viscera. A violent paroxysm, when simple is not the most dangerous, but frequently proves the final attack. The disease is dangerous to the infirm. Children are easily cured. The intermittent may terminate by a conversion into remittent or continued fever, or it may run into a chronic state and by long protraction derange the organs. In this latter way it lays the foundation of other diseases—as certain affections of the heart or lungs, or inflammation, or congestion of the abdominal viscera, with jaundice, and especially dropsy. The nervous system may also become deranged, and particularly with neuralgia.

Death occurring suddenly during the cold stage of a paroxysm, it is usually from engorgement of the viscera of the great cavities; occurring during the hot stage, it is from convulsions arising from excitement of the brain or spinal marrow. The sweating stage is scarcely ever fatal, except in malignant and congestive cases.

POST MORTEM.

Death happening in acute cases in the cold stage, the chief if not only appearance is that of engorgement in one or more viscera.

Death happening in the hot stage of an inflammatory attack, or after a series of paroxysms, phlogosis is displayed in the brain, its meninges, or those of the spinal marrow, in the pulmonary apparatus, or in the abdominal viscera.

Congestive cases, death occurring at any stage, display immense engorgements and traces of weak inflammation. In chronic cases are revealed all kinds of organic depravation of the abdominal viscera, with frequent hydropic effusion.

PATHOLOGY.

From the symptoms in the cold stage, it is manifest that the internal capillary vessels are congested, whilst the external are left with a proportionate deficiency, which is obvious from the cold, pale, contracted condition of the surface. Then is not this chill, etc., the consequence of the want of balance between the internal and external capillaries, and the change produced upon the nerves externally, the consequence of a deficiency in the vital fluid and upon the nerves

internally of a superabundance? The functions on the one hand being diminished while on the other they are morbidly exalted.

Is not this view in accordance with the anatomical arrangement of the two tegumentary systems—with the capillary vessels and nerves terminating upon the internal and external tunic, and with their reciprocal and physiological functions? In all diseases we find irritation, congestion, or inflammation, in proportion to the loss of balance in the two surfaces producing a chill. The approach is at first discoverable at the extremities, by the blue appearance under the roots of the nails, which is soon followed by yawning and stretching, with a sensation of cold, alternating with flushes of heat, until the cold becomes predominant throughout the system. After which a spasmodic action prevails until the reaction gradually forces the heat from the centre to the surface; and after the occurrence of the hot and cold stages, the two capillary surfaces are balanced, the secretion internally and externally augmented, leaving the patient for twenty-four or thirty-six hours apparently without disease. Thus it is evident that the chill is the consequence of periodical congestion, and also the hot and sweating stages, which are an effort of nature to restore the loss of balance between the surfaces, and free herself from the irritating cause.

In simple intermittent, the periodical congestion is upon the capillaries of the liver, stomach, and bowels.

TREATMENT OF THE PAROXYSM—INFLAMMATORY FORM—COLD STAGE.

To overcome the *chill*, we place the patient in bed, cover him well, make hot applications to the lower extremities, and administer warm beverages. The mischief, however, taking place principally in the cold stage, should it be protracted, or the prostration be considerable, we resort to more efficient measures. For this purpose I have used capsicum and xanthoxylum with the best results.

R—Tr. Capsicum ʒ i.
Fld. ext Xanthoxylum ʒ iv.

Mix.—Sig.—15 drops every half hour in warm water. Friction to the spine and a capsicum poultice over the epigastrium. An emetic of comp. powder of lobelia.

R—Pul. Lobelia... ʒ iv.
" Sanguinaria ʒ iii.
" Symplocarpus..... ʒ iii.
" Ipecacuanha..... ʒ iv.
" Capsicum..... ʒ j.

Sig.—One-fourth drachm in warm water every 15 minutes until free emesis is produced. The substitution of cold for hot applications has sometimes succeeded by reviving cerebral and nervous energy.

HOT STAGE,

The indication here is to promote sweating.

Emetics.—These may be prescribed when the stomach is irritated by bile or other matter. Follow with an alcoholic vapor bath. Put the patient in bed, cover lightly, and administer diaphoretics.

R—Fluid ext. <i>Asclepias Tub.</i>	aa.
“ “ <i>Serpentaria</i>	iv 3

Sig.—20 drops in warm water once in two hours. The agents usually relied upon in our system of practice are : quinine, prussiate of iron, podophyllin, berberine, lobelia, eupatorium per, cornine, salacine, chinodine, capsicum, santonine, cimicifuga, populus senecio, etc.

The best time to give the remedy is at the expiration of the paroxysm, or several hours before an expected attack, and it must be repeated at regular intervals and after the disease is interrupted, it is advisable to keep up the action of the remedy at proper intervals. The best combination is the following :

R—Sulphate quinine	aa
Prussiate of iron.....	gr. x
Capsicum	“ iii
Eupatorium-per.....	“ iii mix

Make six powders, one every two hours :

R—Berberine.....	aa.
Quinine.....	gr. x
Prussiate ferri	gr. x mix

Make six powders as above, or

R—Chinoidine	aa.
Capsicum	gr. xxx.
Santonine.....	
Cornine	

To make three grain pills, one or two every hour, and after it is broken keep up the action of some remedy, as Huxham's tincture cinchona, or syrup boneset and salt for a week or ten days. All through the case maintain regular secretion and excretion by the proper remedies, and if there is enlargement of the spleen apply a capsicum plaster and give cinchona. If the patient is of a high bilious temperament, a weak infusion of eupatorium perfoliatum is an excellent remedy. If the type is of the quotidian and tertian, combine the anti-periodic with xanthoxylum, and more especially is this remedy indicated if the patient is intemperate or of sedentary habits. If the type is the quartan and a female with deranged menstrual function, give cimicifuga and senecio. The only preparation of iron that is admissible in the treatment is the prussiate.

The adjunct treatment with the remedies and their indications: *Lobelia* is given with marked benefit, where the patient is wretched and obstinate; *asclepias* where there is violent fever; *lactuca* where the head suffers, pulsations of the carotid, red injected eyes; *capsicum* in the phlegmatic temperament, flabby, mucus constitution, *cimicifuga* acts largely on the brain and nerve centres, and acts in some cases as well as *quinine*.

CONGESTIVE FORM.

The treatment in the congestive form does not differ materially from the foregoing. When the system fails to react we have venous congestion, and this may bring about congestion of brain, apoplexy, or coma. Emetics, alcoholic vapor bath, capsicum, or mustard to the stomach, neck and extremities—any thing calculated to get up reaction. Where we have much disturbance of the brain we would give full dose of cyripedium with *asclepias* added, say

R—Fld. ext. Cypripedium.....	} 3 1
“ “ Asclepias tub.....	
	3 ss.

Sig.—One-half teaspoonful, and repeat in one hour if not relieved. This is preferable to the opium of the old school. Cases occur, also, where there is dangerous collapse without extreme concentrations of blood. These cases are to be managed by external warmth, cordial stimulants, capsicum and lactuca. Examples, moreover, of the disease, are met with, where the whole force seems to be expended on the alimentary canal, promotive of incessant vomiting and purging.

Here use neutralizing mixture and stimulants. The sweating being excessive the most effectual treatment will be warm salt water baths, and next a stimulating liniment to the epigastrium, with dry frictions and a lotion to the surface of strong solution of alum in brandy, or the hot air bath. As the system emerges from these states of prostration, fever may ensue which is to be treated according to its character.

TREATMENT OF THE APYREXIA.

Diversified as are anti-intermittent medicines in other respects, they all concur in deriving their curative power in this disease, from their adaptedness to subvert the disposition to a renewal of that gastric irritation, which usually constitutes its inceptive movement.

Before the commencement of tonic remedies, the system should be prepared for their use. In consequence of a neglect of this preparation, the difficulty of cure is enhanced, the intermittent is in danger of being converted into a remittent or continued fever, relapses are common, with serious organic derangements.

These *preliminary measures are emetic and cathartic evacuations*. The former seem, by breaking up trains of morbid association, to possess in themselves an anti-periodic power. A vast number of other remedies have been recommended, stimulant, tonic, or astringent. Indeed, whatever powerfully affects the physical or mental constitution, has a tendency to destroy the intermittent. When we have congestion, it is important to prevent a second attack, and to ward off this commence, say eight hours before the expected attack, and give

R—Sulp. quinine.....	} gr. xii.
Pulv. capsicum	
	“ vi.

Triturate and divide into four powders; one every two hours until the danger has passed.

TREATMENT OF ABNORMAL MANIFESTATIONS.

In intermittent developing itself merely on some organ, the eye for instance, or as a nervous disease, the treatment will be the same as in a normal presentation. Intermittents being blended with a more serious disease, as dysentery, should be disregarded till the more urgent affections be cured.

DIET.

This should co-operate with the treatment, and be more or less nutritious, accordingly.

Intermittents, though some have attempted to prove them to be salutary, should be cured as soon as possible. It is not true, moreover, that they have much tendency to cease spontaneously.

The earlier, too, we commence with tonics, after the evacuant preparation, the better.

Intermittents have a tendency to be revived every seven days.

In anticipation of this, therefore, we should administer our tonics, for three different periods.

In consideration of the great disposition of the disease to return even when seemingly eradicated, all exciting causes ought to be avoided. If the patient do not emigrate from the miasmatic district he should be particularly careful not to go out in the morning without having first eaten, and should take daily doses of quinine and iron. The cold bath, or travelling, often succeed in preventing relapses.

An attack being threatened the patient should go instantly to bed, cover himself warmly and take an emetic. But as a preventive of a paroxysm of the pernicious congestive intermittent, so much dreaded, the most efficacious appliance is a stimulating capsicum poultice to the epigastrium, so as to be fully drawing at the time of the expected accession. At this juncture also is to be given quinine and capsicum as before directed.

REMITTENT FEVER.

This fever bears a resemblance to intermittent in its cause and effects. It is a form of continued fever characterized by remissions.

There is no cessation of the fever, simply an abatement or diminution.

The period of remission varies from twelve to twenty-four hours, at the end of which time the feverish excitement increases; exacerbation being often preceded by chilliness and rigors. The cause of this special type of fever is malarial and paludal poisons acting on an impaired or shattered nervous system. This form of fever varies much in severity according to the locality in which the poison is generated, in some sections being very mild, in others it acquires a bilious and malignant form and is very severe and fatal, hence there are many names for the fever, as remittent, bilious, or malignant.

SYMPTOMS.—The paroxysm of remittent commences usually with chilliness, languor, lassitude, mental depression, a feeling of cold down the back and headache. To these sensations soon succeed febrile symptoms, constituting the hot stage, the prominent phenomena consisting of great heat of skin, severe headache and giddiness, often accompanied by delirium; a frequent and full pulse; a dry and furred tongue, nausea, and vomiting, generally of bilious matter; sense of pain at the epigastrium, and tenderness on pressure, with signs of pulmonary congestion such as dyspnoea, a feeling of oppression at the chest, cough, and a livid color of the countenance. The urine is often scanty, high colored and loaded with lithates, but it is passed in increased quantities during the remissions.

The remissions usually occur in the morning, and have a duration generally of ten or twelve hours.

The principal exacerbation generally takes place towards the evening, and continues for the greater part of the night, though sometimes the paroxysm lasts for twenty-four hours, or even thirty-six hours. The disease may run on for about fourteen or fifteen days, unless shortened by proper treatment, and then terminate rather abruptly in an attack of sweating, or its symptoms may merge in those of low fever. The period of convalescence is usually short unless some organic mischief has occurred, in which case considerable time may elapse before a restoration to health is effected, the debility being kept up by night sweats sleeplessness, dyspepsia, hypochondria, neuralgia, jaundice, and even dropsy.

Complications.—The extreme severity of some cases, the depressed condition of the nervous and vascular systems with defective secretions, the great exhaustion at the termination of a paroxysm, collapse, convulsions, or delirium, passing into drowsiness and coma, cerebro-spinal meningitis, often with great gastric irritability, or with bronchitis, or with hepatitis, jaundice, diarrhoea, typhoid symptoms predominate. The chief causes of the complication are great depression of the nervous system, with powerful epidemic influences, malaria, improper treatment. As a rule, the fever either terminates in recovery in one or two weeks, or in some of its numerous complications. The diagnosis is important. A continued fever with distinct remissions, but when its complications take place, other morbid states supervene.

Treatment.—The principal indications to be followed are nearly the same as in intermittent fever. Begin treatment with an emetic :

R.—Pul. Lobelia (herb).....	} aa.
Pul. Eupatorium Per	
	} 3 j.

Sig.—steep a teaspoonful in a tea cup of boiling water and give one-half at a dose, and repeat every fifteen minutes until free emesis is obtained. This should be preceded with copious drinks of tepid water, subsequently an alcoholic vapor bath; then unlock the bowels with some saline purge, as citrate of magnesia, or

R.—Podophyllin	gr. iv.
Bi-tartrate potass.....	9 iii.
Pul Capsicum	gr. vi.

Mix intimately and give one scruple every two hours until it operates sufficiently, then rest in bed, and the general treatment of fever at the same time. It must be remembered that as the febrile exhaustion is of longer duration, of greater intensity, than in intermittent, so that there is more fear of structural lesion of brain, liver, spleen, stomach, our object should be to control the fever effectually, so as soon as the emetic and cathartic have done their work, begin with—

R.—Fld. ext. Asclepias Tub	} aa.
“ “ Serpentaria	
	} 5 iv.

Dose.—Twenty drops every half hour until the excitement has completely moderated and the pulse has subsided to 72, headache and other symptoms

greatly ameliorated. Then begin with anti-periodic remedies to shorten or break up the exacerbations, as :

R—Sulph. Quinine	} aa.
Prussiate Ferri.....	
Capsicum.....	
	gr. xii.
	" viii.

Mix.—Make sixteen powders. Immediately after the remission a powder every three hours, taking care to omit as soon as the cold stage sets in. At the next remission, we resort again to anti-periodics, and so on until it is certain that the febrile phenomena have entirely disappeared. During the febrile stages proceed with emetic and cathartic, as above, follow with asclepias and serpentaria. If there be diarrhœa, give :

R—Syrup Rhei et Potass.....	℥ iv.
Fld. ext. Geranium Mac	℥ j.

A teaspoonful as indicated, with some stimulating applications over the abdomen. The diet should be light and nutritious. The complications of remittent fever should be treated very cautiously. If there is much cerebral derangement, active purgatives, heat to the feet, keep the head cool. If there is low delirium or exhaustion, free stimulation and nourishment; if cerebro-spinal irritation make its appearance, capsicum plaster to nape of the neck, internally cypripedium lactuca.

In the interim give anti-periodics, as for instance :

R—Sulph. Quinine.....	gr. xv.
Scutellarin.....	" x.
Cypripedin.....	" x.

Mix.—Make six powders; one every two hours. As soon as the paroxysmal form of fever is removed, very little treatment is necessary. Tonics, as either the wine bitters, compound tincture tamarac, or hydrastia, should be given.

BILIOUS FEVER.

A form of remittent fever induced by depression of the liver. It is generally caused by eating carbonaceous food, alcoholic drinks, malaria—by anything that will depress the liver. It is easily recognized by nausea, vomiting, brown coated tongue, yellow skin, and conjunctiva, coma.

Symptoms.—There is a shock, a period of incubation, in which there is languor, lassitude, debility, nausea, vomiting, brown-coated tongue, yellow skin, pain, perhaps, over the region of the liver and shoulder, or there may be diarrhœa or constipation. In the treatment of this fever an emetic of the compound powder of lobelia, followed by suitable doses of the compound powder of podophyllin to act on the liver; an alcoholic vapor bath; then rest in bed; control the circulation with 20 drops of asclepias and serpentaria every hour. Diet, milk or farinaceous food. Stimulate the depressed liver with either podophyllin, or 15 drops of dilute nitro-muriatic acid three times a day. As soon as the fever is controlled, establish convalescence upon tonics.

This form of fever requires very nearly the same treatment with the exception that the force of the poison seems to be spent on the liver, so there is more apt to be brown-coated tongue, nausea, vomiting, jaundice, diarrhoea and other bilious symptoms, a condition where leptandrin, nitro-muriatic acid, phosphate of soda, anti-bilious physic, and other remedies that stimulate that organ, should be given and the fever managed as above.

Remittent bilious malignant fever, is a type that simple remittent sometimes assumes. The great heat, frequent respiration and pulse, jaundice skin, irritable stomach, with dark charcoal hue on the tongue, all indicate extreme prostration, with blood poisoning. Energetic treatment, as in the simple and bilious form. Antiseptics, as a tablespoonful of brewer's yeast in a glass of milk three times daily, or a decoction of wild indigo weed, or sulphite soda, to arrest the malignant tendency with powerful stimulants and antiperiodics.

Bilious and malignant remittent requires in all cases energetic treatment. The emetic, the anti-bilious purge and alcoholic vapor bath, followed by rest in bed, sponging frequently, and full doses of diaphoretics every two hours, until the circulation is controlled, and then follow with quinine and prussiate of iron in doses to meet the conditions of vital depression and malignancy of the attack. The dose of the medicine must be in all cases in proportion to the condition of the locality, the virulence of the poison, the shock to the patient, and on no account must stimulants and antiseptics be spared.

CONTINUED FEVERS.

YELLOW FEVER.

This disease prevails endemically in tropic countries, having a compound origin arising from the effects of animal and vegetable miasm.

SYMPTOMS.

Introductory.—Generally lassitude, stiffness of limbs, and uneasiness in the back, loins and calves of the legs. Soon after a sense of coolness, which is succeeded after many hours, or more speedily, by a dry, hot skin, dull, or acute pain of the head, darting through the eye-balls, injected eyes, and a countenance expressive either of fierceness or incipient drunkenness.

Sometimes, however, the countenance betrays no change, or even a preternatural serenity, or a look of great distress, with lachrymation, or a malignant frown, and the face is either leadened or bronzed, with a marble-like expression. The *mind* usually preserves a singular integrity throughout the disease, though there may be from the beginning indications of its aberration or weakening. *Epigastrium* tender, possessing often a burning sensation, with anxiety and oppression at the præcordia. The *bowels* usually maintain an obstinate torpor, the tongue is little changed, or white and furzy.

After the first twelve hours.—An exacerbation of the fever. Evidence of undue accumulations of blood in one or more of the viscera. Deep sighing, nausea, retchings of mucus, or glairy albuminous matter. Vomiting seems to

take place by an irregular, convulsive movement of the diaphragm. Wretchedness; the tongue milky, broad and furzy, or florid, or of a fiery redness, or perfectly natural.

Not arrested, the symptoms now rapidly become worse. The eyes assume a dirty yellow color; circulation more irregular, the carotids, in particular, pulsating strongly; the surface damp or sweaty, with a state of skin approaching to œdema, and of a yellow hue, though this last occurs only in cases of extraordinary malignity; frequently, sore throat; difficult deglutition, and, sometimes, paralysis of the extremities.

Towards the close of the third day.—Not unfrequently an apparent abatement of most of the bad symptoms. Soon afterwards, however, supervene almost unquenchable thirst and discharges usually of the dark, flaky, granular matter called *black vomit*. Contemporaneously occur a reduction of temperature and decrease of vascular action and muscular power, though the last may be fully retained to the end. Feeble pulse, cold, colliquative sweats, involuntary diarrhœa of matter like *black vomit*, hæmorrhages of dark blood, low delirium, with coma; laborious respiration, singultus, collapsed countenance, muddy eye, tumid abdomen, occasionally sallow or livid skin.

Sometimes, however, there is an anomalous absence of many of the derangements which we have just described. The patient is unconscious of disease, and, without manifest delirium, insists upon going out and resuming his avocations. But even here the *peculiar countenance, the deep sighing, and tender epigastrium*, distinguish the disease. This serene state will in two or three days terminate by a sort of swooning away, or will become more developed by the supervention of black vomit and other characteristics. In other cases, death takes place without the slightest premonition, and with the suddenness of a blow.

Sometimes the disease is shown only by pain in the toe, or some other anomalous part. Priapism has been also remarked as the only manifest affection. Also in the female is apt to occur pruriency of the pudenda. The epidemic seems to select for the force of its attack the part most predisposed. Displayed generally in the epigastric region most forcibly, it may fall on any of the lower viscera, or the lungs, or the cerebral, muscular, or nervous system, the affection of which may be so preponderant as to obscure the real disease.

CAUSES,

It may be generated from the materials which are contained in the holds of ships, and is never carried by germs in the air. But the distempered atmosphere of a port at which the fever is raging, may be confined in the hold of a vessel which is hermetically sealed, until the hatches are opened in another port. During this time the crew will not, of course, be subject to the disease, though they may acquire it at the opening of the hatches. Likewise when the miasm is generated from a putrefying cargo, the crew may be exempt until the hold is opened. It is equally certain, however, that the same kind of miasm may be evolved by the putrefaction of domestic filth in certain positions, as was evinced by the fever in Philadelphia, in 1805; in Baltimore and New York; in Savan-

nah, Ga., in 1854—1876; and in Memphis, Tenn., in 1877, and, in fact, all the cities of the United States where yellow fever has appeared, have been found in a most neglected, filthy condition.

Whether exhalations from filth, local or imported, will be productive of this fever *under all circumstances*, remains to be determined. Reasons there are, however, to suspect that the tendency to spread is enhanced by high temperature steadily preserved. We may suppose also that the generation of the miasm is dependent on a certain constitution of atmosphere.

Fevers do arise in situations where none of the materials of miasmata exist. The yellow fever here, as in other places, avoiding, as it were, foul and dirty wharves, has broken out on the neatest. But this may be, perhaps, explained on the supposition that where the surface is dry and clean, there are accumulations below, from which, through the crevices, the poisonous miasm escapes. It may be, moreover, affirmed that the fever has generally appeared and raged to the greatest extent on wharves recently made, and filled up with the filth of the streets and argillaceous soil of cellars.

Yet, contrary to all this, has it been affirmed that yellow fever is of contagious origin. By contagion, it is presumed, is here meant what the word legitimately signifies,—a virus generated in one individual, through vitiated vascular action, capable of communicating the disease to a second, and so of multiplying it indefinitely. Opposed, however, to the doctrine of contagion are the following considerations:

1st. The fever is sometimes an epidemic, in its nature, laws, and effects.

2d. The disease has in no well-attested instance spread, when removed from the infected districts. In the Philadelphia hospitals was this fact most conclusively exhibited. Here the nurses, physicians, and other attendants, though exposed as much as possible to any contagion which might have existed, were exempt from the disease. As an experiment, the black vomit, the saliva, and the serum of the blood, have been harmlessly inoculated into the system. The vapor, also from the black vomit has been breathed, and two ounces of it have been swallowed with impunity.

3d. The disease has been invariably suppressed on the accession of cold weather, differing in this respect from contagious diseases. These from the free ventilation, or from the volatility and diffusion of the virus, are less prevalent in warm weather.

4th. In contagion the sphere of communication is very narrow. But in numberless instances has yellow fever been taken by individuals, who had held not the slightest intercourse or proximity with the sick, but who had merely passed through the street in which the contagion was alleged to reside.

5th. Even the line of demarcation may be drawn with tolerable precision, indicating the limits of danger, excepting when the poisoned air may be wafted over it by the force of winds. We have always found the spread of the fever to be in the direction of the wind.

6th. Unlike contagious diseases, which originating in a single point, thence radiate, yellow fever simultaneously appears in remotely separated positions.

7th. In favor of the non-contagious character of the disease an appeal might

confidently be made to probably nine-tenths of the profession who have had opportunities of becoming conversant with it. This argument has some force, from the fact that the question is one much dependent for its solution upon the mere observation of simple phenomena.

But it has been alleged that while the fever is not generally contagious, it does under certain circumstances prove so—as in crowds, ill-ventilated places. But this assertion, however plausible, is wanting in proof.

The cases alleged in support, are only five or six in number, which occurred in the country where the yellow fever seldom or never exists, and in the practice of men who, from the want of acquaintance with yellow fever, would be unable to distinguish it from malignant cases of ordinary autumnal fever. It is indeed to be recollected that, according to the erroneous doctrine of the time, the only difference in the two diseases regarded their degree of violence.

In the immunity which is rendered by one attack of yellow fever, this disease has been said to resemble contagious diseases.

But it is untrue, that in contagious diseases subsequent protection is so generally afforded by one attack.

No agreement exists among the advocates of the hypothesis, as to the mode in which this disease, acknowledged in its general character to be otherwise, becomes contagious; or, in other words, how a vitiated atmosphere operates in the case.

Chisolm says, that it merely increases susceptibility to the impression of the virus already received into the system, and at the same time enhances the action, giving the fever a more aggravated and malignant shape. Professor Hosack maintained some “chemical combination with the virus already secreted from the diseased body, and that thereby the contagion becomes more or less multiplied according to the extent and virulence of such vitiated atmosphere.”

Prof. Rush supposed the contagion to originate in an exhalation from the excretions of the patient; but were such the case, the disease thus produced would be as diversified in its nature as the effluvia from these various sources. Contaminated air does influence yellow fever by the induction of a typhoid state. The typhoid impression may be even so strong as to supplant the primary nature of the disease, but then the contagion would be of the typhus and not of yellow fever. By the researches of Webster, it has been demonstrated that, *all climates are liable to the periodical visitation of epidemics, and that they alternate as regards their general character, two of the same nature never occurring in immediate succession.*

In our own country the yellow fever was repeatedly alternated with the spotted fever, a species of typhus.

It is to be lamented, however, that in all countries in which legislation has attempted to put barriers to the progress of yellow fever, the most harassing laws are founded upon the almost exploded doctrine of contagion.

Exciting causes.—The ordinary exciting causes of febrile affections. Sleep seems to have some tendency to its production. In this state, the greatest proportion of its attacks takes place.

Period of incubation.—The average period is from two to three days in the commencement of the epidemic, becoming greater towards its close, as the poison is probably more diluted.

DIAGNOSIS

Distinct from its exclusive prevalence in cities, and along the wharves, there are peculiarities in itself, so striking, and particularly the countenance of the sick, that it has scarcely ever been mistaken. It bears the closest resemblance, perhaps, to aggravated autumnal fevers. They differ in the following respects :

1. Yellow fever originates in a miasm, which is generated only in particular positions, and at certain times ; while, to a greater or less extent, common bilious fever is incident to many climates and all seasons.
2. The diseases differ in type and in symptoms. The difference is manifested in the pulse, tongue, respiration, discharges from the stomach, conditions of the secreting power of the liver, in the muscular and nervous systems, in the countenance, and especially in the expression of the eye.
3. The yellow fever has its seat and throne in the stomach, while the bilious, though of gastric origin, chiefly involves the liver.
4. The convalescence from yellow fever is rapid and complete ; from bilious fever slow and precarious. In yellow fever the susceptibility to the disease is destroyed or diminished by an attack ; in the bilious fever it is increased.
5. The treatment adapted to bilious fever, totally fails in yellow fever.
6. The mildest case of yellow fever is as easily designated as the most violent and malignant.

PROGNOSIS.

Like other malignant epidemics, the fatality is greatest at its first appearance, and afterwards gradually declines.

Cases marked by forcible reaction and high fever are most favorable ; and the reverse are those connected with confirmed relapse, extreme epigastric or præcordial uneasiness, jactitation, delirium, or coma, or vomitings of tenacious albuminous matter. Still more desperate are the cases, which, with the peculiar physiognomy, little or no affection is evinced. Especially ominous is an eager desire for food, with the morbid venereal feelings to which allusion has been made.

Of the worst import is that exquisite sensibility productive of tetanus or hydrophobia, or where the whole suffering, to an excruciating degree, is concentrated in a part, (the pudenda, or testicles, more commonly,) or the tongue in the advanced stage rapidly clearing, or the pulse, previously bad, becoming with a deterioration in other respects, conspicuously better, or the *occurrence of the black vomit*. Cases thus characterized do not recover. The disease mostly terminating on the third or fifth day, may do so in a few hours. However severe the case convalescence is almost inconceivably rapid and complete.

POST-MORTEM.

The most prominent lesions are in the epigastric regions. On opening the stomach we discover, sometimes a dark fluid hereafter to be described, and the

food, drinks and medicine taken, in some instances several days before, wholly unaltered by the digesting process. The mucuous membrane presents the evidence of phlogosis. These are also manifested by the duodenum. Nearly always, in Philadelphia, has the liver been healthy, though the reverse has occurred elsewhere. Implicated also, occasionally, are the spleen, kidneys, urinary bladder, heart and lungs. The brain is but little affected, even when cerebral disorder is strongly marked. During the last years of its prevalence, 1876-77-79, instead of the inflammatory, the fever presented the congestive character.

It has been clearly established that *black vomit* is only blood more or less altered, in proof of which it may be visibly pressed out of the vessels. When this fluid is discharged in great quantities, the mucous coat presents a pallid hue. The general appearance is that of coffee-grounds or the sediment of port wine, though it is sometimes sero-sanguinous, and sometimes exactly like the menstrual fluid. The black vomit, when fresh, is found to be replete with animalculæ. Cases have been reported as destitute of all lesion. The black vomit is not pathognomic of yellow fever.

PATHOLOGY.

The nature of this fever is still almost as much disputed as other points in its history. Like other epidemics, influenced by various agencies, it is sometimes inflammatory, and sometimes congestive. Sometimes the two conditions are blended. The disease originates in a peculiar irritation or congestion or inflammation of the stomach; which is proved as well by the symptoms as by dissection. This state involves the nervous connexions of that organ. Between yellow fever and the condition induced by certain poisons, both in commencement and progress, has often been observed the most striking parallel. This parallelism is most remarkable and may be traced by any one acquainted with the action of poisons. I consider the disease to consist in the action of an extremely virulent poison upon the stomach, producing excessive disorder of that viscus, and involving other parts sympathetically.

TREATMENT.

If the patient is seen in the early stage, give a stimulating emetic.

R--Pulv. Lobelia (h. rb).....	gr. xx.
Pulv. Eupatorium Per.....	“ xxv.
Capsicum.....	“ xxx.

Infuse in half a pint of water for half an hour, allowing the patient to drink an infusion of capsicum or ginger. Immediately after the action of the emetic give the patient an alcoholic vapor bath, procure a copious perspiration, rub thoroughly dry, giving the patient weak salt and water to drink. Then the following should be given:

R--Quinine.....	gr. ii.
Chloride of Sodium.....	“ iii.
Capsicum.....	“ i.
Xanthoxylon.....	“ ii.

Mix.—At the same time the most active counter-irritation to the spine. Hot

sand bags should be placed inside of the thighs, in the axilla, and all around the patient's legs, body, etc. If there is fever, give:

R—Fluid extract <i>Asclepias Tub.</i>	} an.
“ “ <i>Cyripedium</i>	
“ “ <i>Scutillaria</i>	
	} 5 iv.

Dose—Twenty drops in water every half hour till free diaphoresis and sleep is obtained. Sponge the skin frequently with a solution of sulphite of soda. The bowels should be moved by tablespoonful dose syrup *Rhei et potass.*, to which add fifteen drops fluid extract *leptandria*. If the vomiting is incessant, try tablespoonful doses of the following every ten minutes:

R—Aqua dist.....	O	ss.
Chloride of Sodium.....	.5	i.
Capsicum.....	gr.	xx.

Mix.—If this is not successful, try mustard over the stomach. If the cold stage has supervened, camphor is very effectual, but it must be frequently repeated. Nitro-muriatic acid, phosphorus, nux vomica, *leptandria*, should be tried for the abdominal pain; if there is great nervousness, lactuca and *cypripedium*. *Lobelia* is valuable given in small but continued doses, if the nausea and vomiting is persistent, sinking at the stomach, prostration. If constipation prevails continue the neutralizing mixture, with:

R—Fluid extract <i>Podophyllum</i>	gtts.	v.
“ “ <i>Leptandria</i>	gtts.	xv.

Throughout all the disease the patient should be supported with beef essence; the strictest attention to be paid to cleanliness, ventilation, and the most thorough hygiene. If the patient can tolerate diet, let it consist of arrow-root, cream, champagne iced, white of egg. Small quantities of ice at a time held in the mouth, relieves the thirst. All through the case keep up active spongings, and if all remedies seem to fail, putrefaction supervening, depend on capsicum, champagne and cinchona; use them liberally, for the oftener given, the more likely to be efficacious. These three remedies prove highly serviceable in yellow fever.

RELAPSING FEVER.

The name of *relapsing* or *recurrent fever* has been bestowed upon this infectious disease, owing to the fact that at a certain period of the convalescence there is a relapse of all the symptoms. Epidemics of it have been frequent all over the world, in periods of famine and destitution, and in cities where sanitary laws are not observed. The symptoms commence abruptly with rigors, frontal headache and muscular pains, while soon febrile reaction sets in and we find a great heat of skin, anxiety of countenance, intolerance of light and sound, a white tongue and full, rapid pulse. Complaint is made of urgent thirst and often there is pain at the epigastrium, with vomiting of a bitter bilious fluid. When night comes on the symptoms become aggravated, giving rise to much irritability and sleeplessness. As the disorder advances there is also constipa-

tion, scanty, high-colored urine, sometimes jaundice, and increasing prostration; but just as matters seem to be assuming a threatening aspect, on about the third or fifth day, a profuse perspiration breaks out over the whole body, the fever disappears and the patient is left almost free from the disease, though weak. The convalescent of course fancies that his troubles are over and that tonics and nourishment will soon restore him; but the apyretic interval is short, for about the seventh day from the commencement of the disorder there is an abrupt relapse, a repetition of all the symptoms in a graver form, week by week this goes on each attack leaving the patient weaker and weaker, till on the sixth or seventh week he either succumbs to the poison or it terminates in recovery. Troublesome sequelæ sometimes delay recovery, such as muscular weakness, œdema of the legs and feet, boils, or ophthalmia. When relapsing fever recurs in pregnant women it has a greater tendency than many acute disorders to cause abortion or premature labor. It is often fatal, and frequently death takes place during the progress of the fever, from sudden syncope. No special lesion can be detected upon making a post-mortem examination, but often the liver is discovered to be enlarged from congestion, and still more frequently the spleen is found considerably increased in size. The *treatment* is very simple. Begin with an emetic of lobelia, alcoholic vapor bath, and open the bowels with a mild cathartic; rest in bed; the ordinary treatment of fever observed, beef essence, farinaceous diet. If there is much irritability give:

R—Fl'd ext. Cypripedium.....	}	aa.
" " Scutellaria.....		
" " Lactuca.....		
		3 iv.

Dose.—Thirty drops once in two hours until relieved—as often as indicated. If prostration is great give stimulants. The fever should be controlled with:

R—Fl'd ext. Asclepias Tub.....	}	aa.
" " Serpentaria.....		
Aqua.....		
		3 iv.
		5 ii.

Sig.—One teaspoonful as indicated. Give as indicated to subdue febrile excitement the following, every three hours:

R—Quinine.....	}	aa.
Hydrastin.....		
Iron by hydrogen.....		
		gr. i.

Mix.—The greatest possible attention should be paid to nursing, all unfavorable symptoms watched and met with promptness and decision.

TYPHUS FEVER.

This fever arises from a specific cause; is attended by rigors, chilliness, headache, mulberry or measly rash, frequent pulse, stupor, delirium, dry, brown tongue, prostration, constipated bowels, usually terminating about the twenty-first day. Typhus is divided into four periods, viz: the *forming* stage, the stage of *invasion*, the stage of *excitement*, and the stage of *collapse*.

Symptoms.—*Of the forming stage*—Lassitude, giddiness and dull pain in the head; a peculiar uneasy sensation in the stomach, nausea, and sometimes

vomiting, want of appetite, thirst, pale and shrunken countenance, tremor of the hands, eyes dull and heavy, muscular debility. This stage lasts from three to seven days.

Stage of Invasion.—Slight chills alternated with flushes of heat; tongue whitish or clammy; entire disgust of food, nausea and vomiting, a sense of weight and anxiety in the præcordium. This stage lasts from six to twenty-four hours.

Stage of Excitement.—Face full and flushed, pulse full, somewhat resisting and accelerated; skin dry and warm, lips parched, thirst urgent, bowels constipated, eyes red and watery, slight and transient delirium, vigilance, obtuseness of hearing, weight and oppression in the chest; tenderness and fulness of the hypochondria, catarrhal and peripneumonic symptoms; mind about the *third* day confused, as if stunned, great reluctance to mental and corporeal action. About the fourth day a *red miliary* eruption often makes its appearance. This is an essential exanthema of this disease. The voice is at first rather plaintive, but in the advanced periods of bad cases it becomes guttural, and “at last, truly sepulchral.” The body exhales a peculiar odor in this disease. This stage lasts usually about seven days, at the end of this period it terminates in the

Stage of Collapse.—This stage is characterized by great prostration of muscular power; torpor of the sensorial functions; a very frequent and feeble pulse; tongue brown, dry, at last black; incrustation of the teeth with a blackish matter; short and feeble respiration, difficult deglutition; almost constant delirium, coma, tongue tremulous, and put out with difficulty, subsultus tendinum; hic-cough, heat of the skin intense and acrid; unequal distribution of the animal temperature, diarrhœa, with pain in the bowels, in the periods of severe cases; urine pale, tympanitic bowels, sometimes petechia. The foregoing sketch applies to typhus in its *regular* and *simple* form. In this form there are manifest morning emissions and evening exacerbations. Typhus is subject to various important modifications. In some instances *local inflammations* supervene forming

The Inflammatory Typhus.—The organs most liable to become the seat of inflammation are the lungs, the brain, the intestinal canal, the liver and peritoneum. The mucous membrane of the alimentary canal and the arachnoid of the brain, the most commonly affected. In some instances the stage of *excitement* does not become developed, the stage of oppression continuing throughout the whole course of the disease. This variety constitutes

The Congestive form of typhus. This modification is characterized by a want of reaction; great prostration and sinking from the commencement; deep pain in the head and vertigo; face pale and dingy; respiration anxious and oppressed; pulse small and variable; skin cool, damp and relaxed; countenance bewildered or vacant; eyes dull, watery and red, or glairy and staring without redness; bowels at first constipated, towards the conclusion, copious, involuntary stools; tongue pale and tremulous, becoming at last brown and rough petechiæ; passive hæmorrhages; coma; sometimes from the beginning complete torpor and insensibility. The depressed and prostrated state of the system depends on internal venous congestion. But the symptoms at first

may be very insidious—merely lassitude and debility, sense of fatigue, impaired memory, rigors slight, alternated with flushes of heat, pain in the head, back, limbs, loss of appetite and general stupor ; and these symptoms may prevail for a week or two, and the patient not quite sick enough to go to bed till he becomes slightly delirious. The tongue is very significant. As the disease progresses the eyes become suffused ; the measly eruption prominent ; the countenance dingy, there is ringing in the ears and deafness ; incoherent talking, delirium, tremor, coma, etc. The symptoms, however, are much modified, according to the severity of the attack, the parts most specially affected.

Causes.—The poison of typhus is a specific agent, developed where a number of persons are crowded together in close, filthy, ill-ventilated apartments. This specific animal poison rarely makes its impression unless the health is somewhat impaired. When all the organs are in a normal condition and operate in a healthy manner, an equilibrium is maintained which enables the system to resist the action of noxious agents. It is a disease unknown among savage tribes ; it requires the unnatural and artificial habits of civilization to depress the vital forces for the reception of the poison. Typhus originates in any thing which tends to impair the essential or vital properties of the blood ; over-crowding, defective ventilation, insufficient nourishment. Its accession is marked by no very special symptom, but such as occur in acute diseases generally, unless it be the stupor, sensorial disturbance ; and about the fifth or eighth day the mulberry eruption not fading on pressure, but persistent ; the duration of the fever being from fourteen to twenty-one days.

Typhus is pre-eminently a disease of the blood—the animal poison acting primarily on the blood ; thence on all the organs of the body. This poison is supposed to act as a ferment—one portion of the poison being endowed with the property of communicating it to another ; and then a series of decomposition takes place within the blood corpuscles, which give rise to other ferments. In other words, we have the mysterious chemical process known as *catalysis*, the operation of which is one substance acting upon another, developing in it latent powers and properties not hitherto seen.

Prognosis.—Free and spontaneous vomiting, in the beginning, particularly when it relieves the giddiness, generally indicates a mild course of the disease. *Hemorrhage* from the nose about the seventh day is favorable. Very manifest *remissions* in the morning, are always a good sign. Moderate diarrhœa, during the first days is favorable ; but when it occurs in the latter periods of the disease, it is a very bad sign. Great thirst, in the stage of collapse is favorable, so also is a moist tongue, in this stage. The absence of important or violent local inflammations, always a good sign.

Diminution of *frequency* of the pulse, and of the *acrid heat* of the skin, is favorable. Among the symptoms which are particularly *unfavorable* are : great change of the expression of the countenance in the beginning of the disease ; entire absence of thirst ; constant and violent delirium ; early petecchia, strong peri-pneumonic symptoms ; swelling of the parotids. The most dangerous signs, in the last stage are : blindness, involuntary flow of tears ; difficult deglutition ; palsy of the tongue ; constant low murmuring ; and entire abandonment

of himself; a very frequent and smaller pulse; pain in the region of the bladder; tenderness and tumefaction of the abdomen; *floccitato*; continued motion of the hands and fingers; diarrhoea; insensibility to the effects of stimulants, hic-cough; apthæ; suppression of the urine, etc.

Treatment.—Whenever typhus fever prevails there should be the most thorough hygiene, cleanliness, and ventilation, and powerful disinfectants used.

The patient, if possible, should be placed in a well ventilated apartment, and a vessel of chloride of lime or some other disinfectant, kept constantly present and, if the weather permits, a fire in the room. If a patient is seen in the incipient stage give an emetic of lobelia, eupatorium, and capsicum, and repeat if necessary; then thoroughly cleanse out the bowels with

R	Podophyllin.....	gr.i.
	Leptandrin.....	gr.ii.
	Bi-tartrate of Potass.....	5i.

Dissolve in water and give at a dose; then a vapor bath, keeping the bowels open with small doses of the neutralizing mixture, and the body should be sponged every three hours with tepid water medicated with nitro-muriatic acid. One pound nitro-muriatic acid to seven gallons of water, cold to the head; water or beef essence impregnated with phosphoric acid as a drink. This acid has a most salutary effect upon the blood, as well as in the whole secreting system, a powerful renewer of life, a preventive to the rapid change that is going on under a terrible, destructive animal poison.

For the purpose of restoring the assimilative functions of the stomach, producing an intermission, making an effort to mitigate or abort the disease, we are favorable to the following, combined in various proportions:

R—Sulph Quinine	} aa.
Scutillarin	
Cypripedin	
Prussiate Ferri .....		gr. xxx.

Mix.—Make fifteen powders and give one every three hours. If there is great irritability, large doses of lactuca. The only nourishment is brandy and milk; the former to prevent change or waste, the latter as food; nursing should be continued steadily, both day and night. The recumbent position should be carefully observed; if there is retention of urine the catheter should be used. Our best remedies during the stage of convalescence are, nitro-muriatic acid, hydrastin, gold thread, wine bitters, phosphorus, glycerine.

TYPHOID FEVER.

An endemic fever, infectious and contagious, of a strong, nervous type.

Symptoms.—Typhoid fever varies in its modes of attack. The invasion is sometimes sudden and distinctly marked, occurring unexpectedly in the midst of health; more frequently it is gradual and insidious, some deficiency of bodily and mental vigor, general uneasiness and discomfort, pain and feebleness in the limbs, dizziness, disturbed sleep, loss of appetite, foul tongue, and even nausea being felt for several days—sometimes a week, or even longer. Accession

often begins with intense frontal headache on waking in the morning ; though sometimes there is only a sense of heaviness with vertigo ; a shivering fit of variable intensity soon follows, and is succeeded by increased heat of skin and frequency of pulse. A rapid and striking change in the physiognomy now takes place ; the expression is besotted, the face is flushed, the hearing is dull, with ringing in the ears ; the intelligence is weakened, and there is sensible muscular debility shown by the staggering walk. Diarrhœa is often an early and prominent symptom, setting in with the fever, though obstinate constipation may exist.

Epistaxis frequently takes place in the early days of the disease ; it is usually slight and recurrent, though sometimes excessive ; when trifling and the patient is in bed, the blood escapes into the pharynx and is rejected mixed with mucous as dark round sputa. The disorder being now established, headache, if previously absent, is felt. There is considerable disturbance of the sanguiferous system, the pulse being large, resisting, and over 100. After two or three days it becomes softer and quicker ; in young persons, females and adult males of irritable constitutions, it often reaches or exceeds 120. The skin is dry and pungently hot, thirst is urgent and constant ; the secretions of the mouth are thick and glutinous ; the tongue, which was furred, becomes dry and clammy, or coated at the base and in the center, the edges being red. As the mouth dries, the whole mucous membrane acquires a uniform red color, the lips crack, and the teeth look brilliant from the dried layer of mucous which covers them. Anorexia is complete, and there is often nausea with vomiting of bitter and greenish matters. The diarrhœa is persistent, four or five thin, yellow evacuations taking place daily, attended with pains in the bowels, the abdomen is distended and tympanitic, there is pain on pressure around the umbilicus, and pain and gurgling on pressure in the right iliac region.

The spleen is generally enlarged, shown by increased dullness on percussion in the left hypochondrium ; it sometimes extends below the margin of the ribs. Slight cough generally exists from the outset, with the expectoration of viscid, greenish sputa, and quickened respiration.

From the fifth to the ninth day the peculiar typhoid eruption appears. It consists in minute, rose-red spots, disappearing on pressure, from half a line to two lines in diameter, of a circular form and slightly raised above the level of the skin ; generally found on the abdomen and lower part of the chest, they are sometimes met with on the back, arms and thighs. The eruption does not make its appearance on all the points at once ; nor is its duration always the same ; in some cases it disappears entirely after two or three days ; at other times it persists during twelve or fifteen ; in the latter case it consists of several successive crops, as each rose spot is visible for three or four days only, and sometimes less. Before fading, it generally becomes darker in hue. The symptoms of the nervous centers now increase ; the muscular debility is excessive ; the patient lies motionless on his back, or there is a tendency to slide down in the bed ; he seems perfectly indifferent to his situation ; his features are immovable, he desires to be let alone ; questions, when heard and understood, are slowly and reluctantly answered, and often with evident ill-humor--

the replies being brief and dry ; the perception of surrounding objects is vague ; women make slight or no efforts to resist exposure of their persons ; the eyes are injected and brilliant, but have an expression of unusual stupidity ; sleep is unrefreshing, and disturbed by vivid, startling dreams. The headache diminishes, or ceases entirely about this period. The face is swollen and the cheeks of a lurid red. The pulse is soft, rapid, and often irregular ; and diminution in the intensity and duration of the first sound of the heart, with sometimes its total extinction, is met with in many cases. There is complete deafness ; with irregular and involuntary movements of the tendons of the arms and the hands ; convulsive twitchings of the nose and upper lip and great wakefulness. Delirium generally occurs during the second week and is first manifested at night, the usual period of febrile exacerbation ; it is peculiar, usually tranquil and rambling, though sometimes it is violent, with a disposition to talk loudly, leave the bed and roam about. Sometimes the patient, at this period, falls into a drowsy state—the coma somolentum of authors—from which he cannot be roused except for a few moments. There is now an aggravation of all the general symptoms ; the tongue becomes dryer, browner, fissured and trembling ; sometimes it is of a bright red color and smooth, as if covered with a coat of varnish. The mouth and teeth are covered with dark sordes ; there is great difficulty or even inability to swallow or protrude the tongue ; this may arise from paralysis of the muscles of deglutition, but often the half dried mucosities collect around the base of the tongue and render the attempt painful or impossible. The nostrils become obstructed by dried mucous or blood, and the breathing has a peculiar whistling sound. The pulse is quick and irregular ; diarrhœa is abundant, and the stools are often passed involuntarily ; there is retention of urine ; and hemorrhages may occur from the nose, bowels, and uterus. Concurrently with these symptoms, petecchia are sometimes observed. A peculiar odor is exhaled from the body, by some said to resemble that from mice. The heat of the body is acrid. Sloughs are apt to form, for in no acute disease is ulceration of the integuments more common than in this. They occur in about one-fifth of the cases, and are generally found on those parts of the body exposed to pressure, as the sacrum, occiput, heels, trochanters, etc. Towards the close of the second week, or beginning of the third, a decided change or turn takes place. If the attack is to terminate in recovery, the symptoms abate, the expression of the face is more natural, the pulse slower and steadier ; the patient takes notice of what is passing around him ; the skin becomes moist, soft and of natural temperature, and the tongue cleans rapidly. Some critical evacuation, as sweating, not unfrequently precedes this amelioration. If, however, the disorder is to prove mortal, there is a decided increase in severity of the symptoms, or new ones supervene.

State of the Blood.—The condition of the blood in typhoid fever has been studied with a good deal of care within a few years. Andral, Bouillord, Forget, Simon, and a number of others, have published the result of these investigations. "The blood in typhoid fever," the late Dr. Franz Simon remarks, "exhibits the characters of hyperinosis perhaps more distinctly than in any other affection ; but the statements regarding its qualitative and quantitative composi-

tion are still very contradictory, arising probably in part from its varying in the different stages; thus in the period of excitement it may incline towards a state of hyperinosis; in the state of depression, the fibrin gradually decreases, and lastly, in the stage of collapse, the quantity of blood corpuscles and of solid constituents decreases so remarkably, that in the case of putrid typhoid fever the blood (in consequence of the liquor sanguinis being too watery and deficient in salts) assumes the state of anæmia. The same appears to occur in petechial typhus. One source of difference is, therefore, evidently dependent upon the stage of the disease at which the blood is taken; the presence of any inflammatory symptoms will also modify its constitution.

Causes.—Intestinal fever is a contagious disease, having all the characteristics of contagious fevers, such as a latent period of incubation, exemption by one attack from all subsequent attacks. The operation of the poison belonging to this fever is entirely dependent on its own production in the living body—that being the soil in which this specific poison breeds and multiplies, and that most specific of all processes which constitutes the fever itself is the process by which the multiplication is effected. All the emanations of the sick are infectious, but what is thrown off from the intestines is most virulent. The poison that produces typhoid operates not only on the blood, but induces special lesions in the solids. The precise emanations which produce this fever are unknown; impure air, the gases generated from decomposing animal or vegetable substances, may cause disease and great depression of the vital powers. Some regard this fever as a consequence of the proximity of wells to privies, the inhalation of decayed matter from which we have blood poisoning and disordered sympathetic nerve force; the skin and glands of the small intestines suffer. Typhoid fever is essentially due to decaying animal matter, and is exceedingly prevalent in all our large cities.

Duration.—Should be from two to three weeks, still some are prolonged to the fifth or eighth week.

Diagnosis.—Typhoid is not readily distinguished from typhus fever, in fact, some writers include them under the same head. There is no longer a doubt as to their being two distinct types of fever; one designated by the term typhus—which means to smoulder or burn slowly—the other designated by the term typhoid, which merely indicates a typhus form. I am of the opinion that enteric fever would be a better term for typhoid, but am unwilling to make so great an innovation upon old established division. I propose to give the

DISTINCTION BETWEEN TYPHOID AND TYPHUS FEVER.

TYPHOID FEVER.

It possesses more of a local than an epidemic character.

It leaves well-marked traces on the organs after death.

Epistaxis is present in about one-third of the cases.

Partial or more complete deafness occurs alike in both diseases.

Pupils larger than natural, but the conjunctiva is only slightly injected.

Tongue usually moist, but when dry it is small, red glazed and fissured; when brown its hue is less deep, being yellowish rather than blackish brown.

Intestinal hemorrhage present in one-third of the cases.

Thirst and appetite.

The difference between the two diseases is inappreciable.

The pulse fluctuates more than in typhus.

Sonorous rale present in nearly every case.

Rarely is there dullness of the lung.

Sloughing is frequent in both diseases.

Erysipelas met with in about one-third of the cases.

Cadaveric rigidity remains longer.

Discoloration of abdomen seldom seen.

Emaciation advances further than in typhus, and, in protracted cases, it becomes extreme.

Spots on the skin disappear after death.

Cerebral substance congested in one-seventh of the cases.

Generally occurs in persons under forty years of age.

Typhoid commences insiduously and progresses slowly. Heat of skin moderate, or even absent.

In fatal cases average duration is twenty-two days; sometimes, however, extending to from forty to sixty.

Eruptions different in character, though of a reddish hue.

The spots disappear on pressure, only last for a few days, but are succeeded by a fresh eruption as long as the disease prevails.

TYPHUS FEVER.

Pre-eminently the type of a blood disease.

The fever-poison acting primarily on the blood, there is but little trace of structural change after death.

Epistaxis is of very rare occurrence.

Pupils contracted, but the conjunctiva is intensely injected

Tongue covered with thin, white mucus in the early stage, but less frequently moist throughout the disease.

Intestinal hemorrhage exceedingly rare, save from hemorrhoids.

Constipation more persistent, and followed by watery diarrhoea, with griping. Inflated abdomen, and noise heard by pressure over the right iliac fossa.

Sonorous rale only existing in one-third of the cases.

Intense congestion of the lungs is common, with dullness of the most depressing part of the chest.

Does not occur in one case out of twenty.

Very frequent.

Eruption continues visible after death.

Abnormally congested in one-half of the cases.

Usually occurs in persons over fifty.

Heat is more marked in the early stage, and during the exacerbations. Early symptoms more violent, and their accession is more sudden.

Fourteen days in fatal cases, but very few extending beyond the twentieth.

Known as the *mulberry rash*; it comes out early in the disease, elevated at first, afterwards becoming darker

Appears from the third to the seventh day, first on the trunk anteriorly; the spots are irregular in outline. May be few in number but more frequently numerous and uniting to form large spots, and each patch remains till the termination of the disease. The depth of the color is regulated by the intensity of the fever.

Miliary residis, or sudaminae, may occur in both diseases, in patients under forty years of age.

Countenance, complexion and expression not indicating extreme prostration; complexion clear, brightish pink, flush on one or both cheeks which is circumscribed; anxious countenance

Headache does not disappear until about the fourteenth or sixteenth day.

Delirium may occur about the eighth day, sometimes not until about the fourteenth; it increases slowly in severity.

Somnolence begins after the fourteenth day.

Coma vigil very rarely occurs.

Involuntary voidance of urine and faecal discharges occur at a later period.

Lack of muscular power, and about one-fourth of the patients keep in bed constantly before the seventh day; prostration is not severe until the fourteenth to the twentieth.

Hemorrhage in the cavity of the arachnoid never observed.

Ulceration of the pharynx in every third case.

Ulceration of the œsophagus in every fifteenth case, or thereabouts.

Mucous membrane of the stomach very seldom softened.

Small intestines, mesenteric and Peyer's glands are invariably diseased.

The large intestines frequently found ulcerated.

The spleen is enlarged in all cases, and frequently softened.

Not observed in patients over forty.

Complexion thick and muddy, flush of face uniform, and of a dusky red color; countenance less anxious.

Disappears about the tenth or twelfth day, but afterwards may come on at intervals.

Begins before the fourteenth day; is then less violent; it may be noisy but generally low and muttering.

Comes on before that period.

Present in every fifth case.

Occur much earlier.

Nearly all patients keep their beds entirely before the seventh day. Extreme prostration about the ninth day. A want of expression of the face

Occurs in every eighth case.

Does not occur.

Free from ulceration.

Softened in a few cases.

Invariably normal.

Not ulcerated.

Before the fiftieth year it is enlarged; after that age it is smaller and softened, as in typhoid.

The kidneys, liver, and pancreas are more flabby than in typhoid.

Changes in the Blood.—In both diseases the blood becomes altered in its constituents, and the fibrin diminishes in proportion to the duration and intensity of the disease. The blood corpuscles increase, but the red color and fibrinous consistence of the normal vital fluid are greatly diminished.

MORBID ANATOMY.

The constant lesions found in persons dying of typhoid fever are in the follicles of the small intestines and mesenteric glands. On examining the exterior of the small intestines of those who have died from the fifth to the eighth day, reddish, blue or black opaque discolorations sometimes covered with false membranes and corresponding in situation to the diseased follicles, are visible along the curvature. On pressing these spots between the fingers they are found to be hard and unequal. On opening the intestines by an incision along the mesentery, the *agminate follicles* (glands of Peyer) will be discovered in one or both the following morbid conditions:

1. *Soft Patches*—Slight prominence; the mucous membrane a little softened,

and the surface smooth or mammillated. On cutting into the elevated patch, the mucous and subcellular tissues are moist, injected and thickened. In some instances the gland has a reticulated appearance, the tissue resembling the parenchyma of the cherry or plum, the mucous membrane being softened and readily detached.

2. *Hard Patches*—More elevated than the preceding variety; elastic to the touch; on division the sub-mucous tissue appears to be transformed into a homogenous matter of a pale yellowish hue, firm and friable. The surface is plane and shining. This species occurs in about one-third of all the cases; usually in those which terminate at an early period; and is supposed to be connected with the more severe and rapid forms of the disorder.

3. *Ulcerated Patches*—are observed after the ninth or twelfth day; there are two varieties; in one the ulceration begins in the mucous membrane, and extends to the gland, which it gradually destroys; in the other the yellow matter of the gland first softens, the mucous membrane being consecutively involved, and easily detached in shreds.

Sometimes the peritoneum is perforated by the extension of the ulceration, or from the formation and subsequent separation of an eschar; these perforations are about a line or two in diameter, are single or multiple, are found in the lower part of the small intestines, and when the altered patches are but few. The number of diseased patches varies from one to thirty or forty; they bear no proportion, either in number or degree of alteration to the symptoms during life.

The *isolated follicles* (glands of Brunner), frequently present the same alterations as the *agminate*; when affected they appear as conical, rounded elevations, about the size of a hempseed, and resemble large pustules. This condition is found only in the lower half of the ilium.

The *mucous membrane* between the follicles is in about four-fifths of the cases more or less softened and injected. In those dying after the 20th day, a simple gray or slaty discoloration is seen only.

The *mesenteric glands* are as constantly affected as the intestinal follicles. Their condition varies with the epoch of the disorder. From the fifth to the thirteenth day they are merely enlarged, softened and friable, and in hue from a delicate rose to a deep red.

Treatment.—We must, in order to be successful, appreciate the true condition. We must bear in mind that the typhoid fever poison is not the disease. It is the partial death which this agent has caused that is the disease. It is that which chiefly demands our attention. We must ask ourselves, Is vitality depressed, and where can aid be rendered? If the patient is seen early we perceive that the organs of digestion are arrested and the stomach should be emptied with:

R--Pul. lobelia herb.....	gr xx.
Eupatorium per	" xxv.
Capsicum	" xxx.

Infuse in a half pint of hot water and give one-fourth every fifteen minutes. Its effect on the brain is salutary. The skin is hot and dry and calls for artifi-

cial moisture ; there is deficient perspiration and evaporation. Then sponging the entire body should be resorted to several times daily, followed by brisk friction with the dry hand. At this early stage we are often able to stimulate the depressed vital forces that the patient recovers without running through the tedious process of a fever, hence friction with warm salt water over the nape of the neck, shoulders, and abdomen is excellent. The stimulus is reflected to the brain, and it may be repeated once or twice daily. Then give

R—Fld. Ext. <i>Serpentaria</i>	} aa
“ “ <i>Asclepias Tub</i>	
“ “ <i>Xanthoxylum</i>	
	34.

Dose.—15 drops in warm water once in three hours, until heat, respiration and pulse are lessened. In connection with this, one of the following powders should be administered every two hours :

R—Sulph Quinine	} aa
Prussiate Ferri	
Capsicum	
	grs xij. “ iii.

Mix.—Make six powders.

Nourishment should be liberal. Beef tea and milk, perfect rest in recumbent posture, and, to appease thirst, a tea of boneset. On no condition must there be a cathartic given. With the above treatment we can frequently prevent or abort an attack of typhoid fever. The above treatment however, is only proper the first three or four days of the fever.

If unable to repair the shattered vital forces, and so break up the fever, we must prepare for the general management of the fever for three or four weeks.

Every thing should be done to restore lost energy. The best ventilated apartment should be selected for the patient, and antiseptics exposed therein. Bed should be placed in the middle of the room, head due north, in harmony with magnetic law. The bedclothing should be either silk or flannel. The nurse should be young and vigorous. The practice of engaging elderly ladies to nurse the sick, or permitting them to sleep with them, or near them, is highly deleterious. The reflex emanations from one to the other are prejudicial. We have a good illustration of this in children being sickly and puny who sleep with the aged.

There is a decided law of assimilation. We become like each other in all things. The *serpentaria*, *asclepias* and *xanthoxylum* should be administered in suitable doses to control the circulation and keep moisture on the skin. A few grains of quinine should be daily given to stimulate the vital forces. The patient should be kept rigidly in the recumbent posture and on no account permitted to get up. Heat and moisture, that is a warm poultice of hops, flaxseed or elm, with pulverized lobelia lightly sprinkled over it, should be kept over the abdomen day and night, and warm bricks to the feet. The patient should be bathed daily, which should be followed by brisk friction with the dry hand, and then afterward bathed with olive oil. Milk or beef tea should be administered regularly day and night every few hours. No fruit or solid food allowed. No cathartic should be administered—enemas only. Sleep must be procured

for which purpose try the following: A hop pillow below the head. If that does not answer the purpose give:

R—Fld. Ext. Lactuca	aa
“ “ Humulus.....	3 iv.

Dose.—Thirty to forty drops every hour. Begin early in the evening and give thirty drops every hour until sleep is procured. Repeat every night if it operates favorably. If it does not, try the following:

R—Aqua Camphor	3 iv
Fld. Ext. Cypripedium.....	3 iv
“ “ Scutellaria.....	3 iv.

Mix.—One teaspoonful every hour until sleep is procured. Sleep is indispensable in health and disease. Independent of its restorative action, the secondary process of digestion is carried on under its influence, and especially is it necessary in such fevers as typhoid. In order to stimulate the mucous membrane of the stomach and bowels, and thereby promote assimilation, we have found the following excellent:

R—Fld. Ext. Myrica Cer.....	aa
“ “ Populus Trem	3 i
“ “ Capsicum.....	3 ss
Boiling water.....	Oi.

When cool give in tablespoonful doses. Frequently this acts as a local alterative to the ulcerated bowels and mucous membrane, keep the tongue clean. If thirst is great, gum arabic water, marsh mallow tea and fifteen drops of dilute phosphoric acid once in four hours all the way through. Give in a wine-glass of sweetened water. This seems to fortify the system against the action of the poison and may be given in all cases of typhoid fever with efficacious results. If there is great foetor, a tablespoonful of brewer's yeast added to the milk may with great advantage be given twice a day, or if this is not procurable, a decoction of wild indigo weed. If there is diarrhoea, it must be at once checked by:

R—Fld. Ext. Myrica Cer.....	aa
“ “ Gefanium Mac.....	3 i

Mix.—And give twenty drops after every action of the bowels. If there is tenesmus, give:

R—Fld. Ext. Humulus.....	aa
“ “ Nymphœa odor	3 ii
“ “ Myrica Cer.....	

Mix.— Give in half pint of starch-water by the rectum.

If there is prostration with tremor, low muttering delirium, irregular pulse, brandy should be administered in quantities sufficient. The remedy should be commenced at the proper time, and liberally given, so that the nervous system should not feel the destructive change going on.

As a general thing there are few remedies that act upon the ulcerated glands of the bowels, and in the ordinary run of cases where perfect rest and good nursing is attended to, little is demanded. Besides the myrica, turpentine has a

good effect in doses of from ten to fifteen drops three times a day in mucilage, on or about the tenth or twelfth day, for two days.

Nitro-muriatic acid dilute is also invaluable—a few drops in water.

Attention to the state of the bladder is most important, suppression of urine. All complications should be watched and vigorously met. Guard carefully against pneumonia, which is the common sequel, for nothing is more discouraging than to have the patient upset by any thing whatever.

During convalescence greater care will be required than after other forms of continued fever, since any irritation applied to a cicatrizing ulcer in the ilium will possibly affect it unfavorably and re-excite that morbid action, which may end in perforation.

Tonics are to be carefully given, none being more suitable in the beginning of convalescence than some preparation of bark and myrica. The return to a generous diet must be very gradual; no solid food allowed until the tongue has become clean and moist, the pulse soft, and till all feverish excitement has vanished, until which time, also, the patient should neither be allowed to leave his bed, nor even to sit up much in it.

SURGICAL, OR TRAUMATIC FEVER

Is the name given to the general febrile state which is apt to follow injuries or operations.

The nature of such fever varies with the degree of the injury, the particular part affected, and the constitution and habits of the patient. If he is robust and vigorous the inflammatory symptoms will be of the sthenic kind. There will be a full and quick pulse, a hot skin, a high temperature, a flushed face, suffused and blood-shot eyes, and great thirst.

If delirium (traumatic delirium) comes on, as it often does, especially in those who have been accustomed to take large quantities of alcohol, it is furious in its character. The patient is ungovernable, talks loudly and is under the influence of delusions. Sometimes he is inclined to be merry, but more often he is angry. He tosses himself in bed, is always wanting to get up, and does not seem to feel any pain from the injury, however severe it may be.

Treatment.—This must be active emetics, cold to the head, active purgatives, diaphoretics, treating the disease upon general principles, according to cause, extent of injury, etc. If on the other hand, if the patient is of broken health or of a feeble constitution, the symptoms will be of the asthenic or irritative type—the pulse quick and small, the tongue brown, the skin pale and clammy, the features pinched, and the expression anxious. If delirium ensues, it is of a low muttering kind, or else it is busy, meddling and suspicious, like delirium tremens. The bowels should be relieved and then give

R—Fld. Ext. Lactuca	} aa.
“ “ Humulus	
	} 3 iv.

Dose.—30 drops once in two hours until sleep is induced. It will generally be found advisable to give it in whatever the patient has been accustomed to

drink. At the same time he should have plenty of plain nutritious food. In all cases of traumatic delirium the patient will have to be restrained, so as to prevent his getting out of bed. If possible, this should be done by persuasion, management, skilful nursing, and gentle force. If more than this is required it will be necessary to put on a strait-waistcoat. Such a waistcoat is made of strong cotton cloth or of ticking and extends from the root of the neck to the waist. The sleeves are long, so as to extend some little distance over the hands, and closed at the extremities. A cord is generally tied around them below the hand, and carried down to the foot of the bed so that the patient is obliged to keep his arms by his sides; or else they are crossed over his chest, and secured in that position. The waistcoat is usually furnished with shoulder straps through which a belt may be passed in order to restrain the movements of the patient's body. We have described extreme cases as types of two forms of traumatic fever, but in practice they are often found more or less blended.

HECTIC FEVER.

A form of remittent fever of long and indefinite duration consisting of an exacerbation once or sometimes twice a day, attended with extreme attenuation of the body, and depending either on suppuration or upon important organic derangements of the body.

Symptoms.—The symptoms of hectic fever, when it is fully formed, are very characteristic. Like other fevers it is obscure in the beginning and can scarcely be distinguished from the febrile state at the commencement of continued fever, or that which attends some chronic internal inflammations, chronic visceral derangements of structure, and gastro-intestinal irritation. The pulse is generally frequent, varying between 90 and 120—always irritable, so that slight sources of excitement increase its frequency—and usually small, jarring, yet compressible. Irregular exacerbations occur, preceded frequently by chilliness, attended with heat of skin, some flushing of the features, and a burning sensation in the palms and feet, but not always followed by perspiration.

Although the exacerbations occur irregularly upon the whole, they are observed to be most frequent after meals, especially breakfast, and to recur very regularly in the forepart of the night, at which time the paroxysm is generally greater than at any other period. The digestive functions are at this stage not unfrequently, yet by no means invariably disturbed, the tongue being coated the stomach weak and the bowels subject to constipation. There is always much debility; and the emaciation is commonly great in proportion to the amount of fever, and other functional disturbances, although some remarkable exceptions are observed to this rule, even in that most unequivocal of all forms of hectic which attends pulmonary consumption. The irregular febrile paroxysms gradually pass into a continual state of excitement of the pulse with a regular exacerbation of fever occurring at least once, and often twice in the twenty-four hours, usually at the same period of the day. The principal exacerbation commonly begins towards evening, reaches its height about midnight

or a little later, and goes off early in the morning. The paroxysm of exacerbation of hectic is essentially a paroxysm of remittent fever. The cold stage is often wanting, especially when the disease is fully formed. The hot stage is almost invariably followed by considerable perspiration, unless means be taken to prevent it. The interval is generally one of remission merely, the pulse continuing frequent.

Diagnosis.—The diagnosis of hectic fever is an object of much importance in practice, both directly on account of the disease itself and its treatment, and also indirectly for the sake of the inferences which may be drawn from its presence and absence in various diseases. In some circumstances, for example the presence of hectic may determine the question of the existence of certain organic disorders; and in others, as in chronic pleurisy, it may point out the pathological termination of the disease and the nature of the fluid effused. Fortunately, it is for the most part easily distinguished from all other fevers by the characters which have just been given above. With one form only of fever is it apt at times to be confounded, namely, certain varieties of irritative fever, especially those which attend chronic internal inflammations. In all states of debility the skin is frequently observed to be bathed in perspiration as often as the patient awakes. But this recurrence is easily distinguished from the sweating of hectic by its happening at all times of the day indifferently, and by the sweating of hectic taking place whether the patient is asleep or awake, and generally indeed, before the approach of sleep in the early part of the morning.

Causes.—Hectic may arise from a great variety of gastro intestinal irritations such as errors of diet, foreign bodies in the alimentary canal, especially irritating poisons, diarrhæa and the sequelæ of intermittents; also irritations of the pulmonary mucous membrane from foreign bodies or chronic catarrh, gonorrheal or leucorrheal irritation of the mucous membrane of the genital organs—excessive hemorrhagic discharges, protracted lactation, excessive sweating, and extensive chronic diseases of the skin, mental irritation or exhaustion from excessive study, and violent passions, general bodily fatigue, excessive atmospheric heat or cold, and finally from organic diseases of internal organs, and suppuration either of internal viscera, or in other more external parts of the body. The most remarkable and characteristic cases of hectic occur along with internal suppuration, such as ulceration of the lungs, consequent upon tubercular deposition, purulent effusion into the chest, the result of chronic inflammation of the pleura, suppurating tumors in the pelvis or abdomen, lumbar abscess and the like. There is likewise no question that hectic fever may be occasioned by serious organic diseases without purulent matter being formed. Cancerous affections for example, sometimes engender all the phenomena of hectic, before they reach the stage of suppuration; and the same is observed to occur in regard to some chronic inflammations, such as chronic pleurisy and chronic pneumonia. Hence in chronic inflammations, the advent of hectic fever is not so unequivocal a sign of suppuration having taken place as many practitioners imagine.

Treatment.—The treatment of hectic fever is necessarily in part subordinate to that of the fundamental disease on which it depends. But there are likewise

certain measures which may be resorted to for mitigating more directly the severity of the febrile action. In the generality of cases a somewhat generous diet including nutritive articles of food, and even the moderate use of stimulating liquids is found to support the strength without increasing the febrile action. In every circumstance, however, the diet should be easily digestible and not too abundant, otherwise the stomach is enfeebled, and the heat and restlessness of the exacerbations increased. Give syrup hypophosphites :

R—Hypophosphite Soda.....	aa
“ Calcis	
“ Potass	3 iv.
“ Ferri.....	
Simple Syrup.....	Oi.

Mix.—Shake well and give a teaspoonful before each meal. In connection with this we may give :

R—Quinine.....	gr. XX.
Capsicum	gr. XX.

20 powders—I powder three times a day.

The patient ought to be confined in cold weather to apartments maintained at a uniform and moderate temperature ; and at night when the sweating stage of the exacerbation approaches, the bedclothes should be diminished as far as is consistent with his feelings. In mild weather, however, and in a suitable climate, great advantage is found in persevering with gentle out-of-doors exercise as long as the strength will permit. One of the most important objects of treatment in hectic is the diminution of colliquative sweating. In addition to the means already pointed out for this purpose, it is found that advantage is sometimes derived from the tepid salt water sponging of the head, face, chest and arms, in the early part of the night before the sweating stage sets in. Of all internal remedies for the same give the following :

R—Fld. Ext. Populus Trem.....	a a
“ Geranium Mac	i 3

Mix.—I teaspoonful to 1 pint of warm water—drink freely during the day.

The general line of treatment other than the above will depend upon the cause and must be governed accordingly.

DENGUE.

Definition.—An acute febrile affection, of short duration, due to an unknown external, specific cause and prevailing in extensive epidemics which are chiefly confined to warm climates ; it consists of two distinct, brief febrile paroxysms, each attended by a different group of symptoms, and separated by an intermission lasting from a few hours to several days. The first is characterized by continuous high fever, distressing pains in the joints and muscles, interfering with motion, and occasionally by a cutaneous efflorescence ; it usually terminates suddenly with some critical discharge ; the second paroxysm is marked by a milder fever of remittent type, an eruption of different character which is at-

tended with intense itching and followed by disquamation, by some recurrence of the joint-pains, and by debility; it gradually subsides. The disease is extremely painful, but very rarely fatal; its morbid anatomy is therefore unknown.

Symptoms.—The invasion of the disease is generally abrupt; there may be in some cases, however, a prodromal stage of from one to three days, characterized by lassitude, headache, a furred tongue, loss of appetite, muscular soreness, and chilliness.

Usually, however, the patient is seized upon waking with intense headache, burning pain in the temples, backache, and severe pain in the joints. Sometimes the first symptom is an acute pain in one of the joints of the hand or foot: this may come on while the patient is engaged at his ordinary occupation, and apparently in full health. The affected joints rapidly become swollen, and the skin of the face and neck is flushed and turgid. Painful stiffness of the muscles follows, the affected members are moved with great difficulty and suffering.

The muscles of the eyes sometimes become stiff and immovable, the conjunctiva reddened, the eye lids swollen, so that the patient wears a staring expression, while the eye balls feel too large for the sockets. There is intolerance of light and sound. At the same time symptoms of gastric disturbance occur; the tongue is coated, a burning pain is felt in the epigastrium, and there is nausea, followed by bilious vomiting. The irritability of the stomach is often so great that scarcely any thing is retained. In most cases desire for food is wholly lost; but not infrequently, especially in children, the appetite is retained; thirst is not urgent; the bowels are constipated. The pulse is full, hard, strong, and exceedingly frequent, beating from 120 to 140, and even higher in children. The breathing is quickened, the skin hot and dry. Confusion of thought, and even delirium, particularly in young children, also occur. The duration of the first febrile paroxysm is variable, lasting from a few hours to several days. Its average duration is from two to three days. The fever generally abates suddenly, often with the occurrence of critical discharges, such as profuse sweats, epistaxis, or diarrhœa, the evacuations being dark, greenish, tawny and foul smelling.

Causes—Predisposing.—There can be no doubt whatever that climate has a large influence in the development of dengue. It is a disease of tropical and sub-tropical lands. When it has occurred in colder countries, it has made its appearance almost exclusively in the summer or autumn, and upon the advent of cold weather has promptly disappeared. Its prevalence has also been restricted to sporadic cases or to circumscribed local epidemics. This disease is undoubtedly affected by frost. The diminution of cases after a frost last autumn, was as marked as the diminution of cases in our endemic climatic fever usually is. The disease spares neither *age*, *sex*, nor *occupation*.

Infants in arms and octogenarians are equally prone to it. All classes of society alike suffer. The physician enjoys no immunity. He is almost invariably attacked.

Exciting Cause.—The exciting cause of the disease is a specific miasm and while it appears to be contagious in the infected district, yet it is never carried to others who live beyond the line of the miasmatic origin. Its mode of inva-

sion, its rapid march, the unsparing manner in which it attacks entire families, cities, and even districts within a brief space of time, are opposed to the assumption that it is propagated by contagion alone.

Diagnosis.—The diagnosis is not attended with difficulty. No other disease presenting analogous symptoms spreads with the same rapidity through a community. No other disease whatever, except influenza, with which dengue can by no possibility be confounded, attacks entire communities, sparing neither the young nor the old, the poor nor the rich, and, as has more than once been recorded, not a single individual in a district. The natural history of dengue makes it unnecessary to point out the points of differential diagnosis between it and *acute articular rheumatism*, to which it presents, in the first febrile paroxysm strong resemblances; or between it and *scarlet fever* or *measles*, which the eruptions of the second paroxysm, are said, in certain instances, to resemble. Its likeness to relapsing fever is confined to its course, which is in fact that of a relapsing fever.

In future outbreaks careful microscopic examinations of the blood are urgently called for, in view of this resemblance, and the discovery by Oberheimer of a minute organism in the blood of relapsing fever patients.

Treatment.—The treatment is to be conducted in accordance with general therapeutic principles, and is for the most part symptomatic. Eliminative measures in accordance with the practice of the tropics have been usually employed in the beginning of the treatment. Emetics should be given, as:

R—Pulv. L. belia (herb)	gr. xxx.
Eupatorium Per	gr. xxx.
Capsicum	gr. xx.

Infuse in half pint of boiling water, and give half gill every fifteen minutes until free emesis.

Purgation is called for by the constipation which exists during the period of fever, and by the dark green color and highly offensive character of the evacuations which commonly take place at its critical termination. It is desirable to anticipate elimination by the bowels by recourse to mild, but efficient purgatives, as:

R—Podophyllin	gr. vi.
Leptandrin	gr. xii.
Rhubarb	gr. vi.

Mix.—Divide into six powders and give one once in six hours, until they act freely. The bowels should be kept open throughout the sickness by the occasional use of syrup of rhei et potass. in suitable dose. With a view of acting upon the skin, give:

R—Fluid Extract Asclepias Tub.	} aa.
“ “ Balm	
“ “ Serpentina	
	} 3 iv.

Dose.—Thirty drops once in three hours. Alcoholic vapor baths to equalize the circulation. To relieve the pain, give:

R—Fld. Ext. Cypripedium	} aa.
“ “ Lactuca	
	} 3 iv.

Dose.—Thirty to forty drops at night—repeat if necessary.

For local application to relieve pain in joints, use :

R—Tr. Belladonna Fol	aa.
“ Aconite Fol	3 i.
“ Hyosciamus	aa.
“ Arnica	3 ss.
Chloroform	

Apply over the affected joint and muscle, twice a day. The itching, which is so distressing a symptom in the second paroxysm, and during the desquamation which supervenes, may be in part relieved by the application of lotions of sulphite of soda.

ERUPTIVE FEVERS.

The eruptive fevers are continued fevers, with the addition of an eruption. The diseases of this class are small-pox, measles and scarlatina. They bear a strong resemblance to some diseases of the skin, but as they are due to the presence of miasm taken into the system and afterwards affecting special parts, the mode of classifying them under fevers is the proper course to pursue.

These fevers, then, have a common character, a certain period of incubation, a certain time elapsing between the poison being inhaled and the establishment of the fever, a time, also, during which the patient's health is apparently unaffected. The fever, when it makes its appearance, is of an inflammatory or continued type, runs a defined prescribed course.

They are also attended by an eruption which runs through a regular series of changes, and they affect the individual not more than once in a lifetime. They arise in all cases from a specific contagion, their progress cannot be stayed or cut short, but their severity can, in all cases, be mitigated or abridged by appropriate medicines, or modified by hygiene, by the most thorough nursing and attention to certain rules.

CHICKEN-POX.

Varicella of trifling infectious form, almost peculiar to infants and children. This form runs through all its phases in from six to eight days. Sometimes, if the vital forces are low, it runs the usual course. It consists of an eruption of pimples, which on the second day become converted into transparent vesicles, surrounded by slight redness.

Rash commences on the shoulders and back, and afterwards affects the scalp, sparingly seen on the face. About the fourth day the vesicles form small scabs which rapidly dessicate. Very little, if any, constitutional disturbance, very little fever. It never occurs but once in the same person; has a short incubation, four days; not liable to small-pox afterwards; not, however, positively exempt. The only treatment required is small doses of the neutralizing mixture

serpentaria and asclepias, sponging with alkaline wash, and, during convalescence, elixir cinchona et ferri, gold thread, tonic bitters, iron, etc.

SMALL-POX.

Variola, a continued infectuous fever, attended with an eruption. Due to the absorption of a specific poison. There are several grades or types, varying in intensity and virulence according to the amount of the poison absorbed, and the vital tonicity of the patient. This poison gains access to the body by the salivary glands of the mouth.

This disease has properly five stages: *incubation*, twelve days; *primary fever*, three days; *eruption*, appearing on the third day of fever; scabbing on the ninth or tenth day; *falling off* on the fourteenth, and *secondary fever*.

This disease is divided into two varieties, the *confluent* and *distinct*. The distinctive character of the former is: pustules confluent, depressed, irregularly circumscribed, the intervening spaces being pale, and the fever continuing after the eruption is completed. The distinctive character of the latter is: pustules distinct, elevated, distended, circular; the intervening spaces being red, and the fever ceasing when the eruption is completed.

DESCRIPTION OF THE DISTINCT KIND.

At first aching pain in the back and lower extremities, lassitude and loss of appetite, slight chills, nausea and vomiting, with some soreness in the fauces, and finally fever. Towards *the end of the third day* of the fever, the eruption makes its appearance, first on the face and neck, and successively on the inferior parts. Just before the eruption appears, adults generally perspire freely, and sometimes become comatose. Children frequently suffer convulsions at this period; the fever ceases the fifth day. At first the eruption consists of small red spots, rising by degrees into pimples, then becoming vesicular on the top with a small pit in the centre, and finally about the eighth day becoming pustular, and of a spheroidal shape. About this period, the face and eyelids swell, the tumefaction subsiding again about the eleventh day. The pustules are at their full and perfect state on the twelfth day; from this date they begin to shrink and dry, the matter forming crusts of a brown color; in a few days more these crusts fall off, leaving the skin underneath of a brownish red color. The pustules are surrounded by an aureola of a damask-rose color. When the pustules are numerous, some degree of fever occurs on the tenth or eleventh day. In these cases, there is usually some soreness of the throat, hoarseness, and a copious discharge of thin fluid from the mouth.

THE CONFLUENT VARIETY.

In this variety, all the above mentioned symptoms of the early stage are severer; pain in the loins, in the forming stage very severe; the severer this pain, the more certainly will the disease assume the confluent character. Seldom any

profuse perspiration just before the appearance of the eruption, as in the *distinct* kind; instead of this *diarrhœa* often occurs at this period. Great soreness and redness of the fauces, and generally a copious flow of saliva. The pustules appear earlier than in the distinct kind—seldom later than the beginning of the third day—very rarely as late as the fourth or fifth day. The pustules are not surrounded by an inflamed margin. Where they are separated, the intervening skin remaining pale and flaccid. The face is always much swollen—the swelling coming on earlier than in the distinct variety, and declining about the tenth day. The matter in the pustules is never thick and yellow, as in the distinct variety, but of a whitish brown and sometimes dark color. About the eleventh day the pustules break and pour out a fluid which hardens into brown or black crusts. When these fall off, the skin underneath desquamates, producing small and permanent depressions, or pits, in the skin. The fever does not cease, but *remits* on the appearance of the eruption, increasing again about the sixth day and continuing throughout the whole course of the disease.

CAUSES.

The large majority of cases of small-pox originate in contagion. I am firmly convinced it is pre-eminently a blood disease which has an affinity for filthy persons, filthy abodes, crowded tenements, and those whose habits of life are such as to lower the vital powers and invite contagion. In the South the negro race is subject to contagion of small-pox in the proportion of twenty to one, that is, we have twenty cases among the negro race to one of the white. The negro race is exempt in proportion as his habits and mode of living approach that of the white. Those who are cleanly in person and abode are much less subject to infection than those of opposite condition. The same holds good with the Caucasian. It will be found that the class of people who pay most attention to cleanliness and hygienic laws are seldom attacked with small-pox—can come in contact with it with almost perfect impunity when the secretions and system are in a healthy, active condition. There is an acid condition of the whole system affecting every secretion, hence the value of alkaline agents both as prophylactic and remedial agents.

Thus we are led to the conclusion that while small-pox is a contagious disease, it may be developed in crowded tenements where great numbers congregate in the same room, sleep in the same apartment and breathe the exhalations over and over again. This will, no doubt, produce the peculiar blood poison and give rise to the small-pox, which may thus be conveyed from one to another. Small-pox often appears in military camps, emigrant ships, where this condition exists, and I believe there can be no doubt of its originating in this way.

DIAGNOSIS:

Before the appearance of the eruption, the diagnosis of small-pox is always liable to uncertainty, even with every attention to the character of the prevailing epidemic for the precursory symptoms are common to other diseases. The grounds on which we attempt, at this early period, to determine the nature of the approaching disorder, are: 1st, The suddenness of the attack; 2d, The

absence of previous ailment; 3d, The exposure to variolous contagion, and 4th, The having previously undergone one or more of the exanthemata.

The diseases with which, after the occurrence of febrile eruption, small-pox may be confounded, are measles, febrile lichen, varicella, and secondary syphilis.

1. The papulæ of true small-pox are firmer than those of measles. They feel granular, like hard bodies, under the finger. In measles, too, there are accompanying coughs and watering of the eyes. Furthermore, forty-eight hours elapse in small-pox from rigor to eruption; seventy-two hours in measles.

2. Febrile lichen is the disease from which small-pox, at the onset of eruption is with most difficulty distinguished. The aspect of eruption is in both cases nearly alike. The surest and safest grounds of diagnosis are based on the interval which has elapsed from rigor to eruption, and the seat and extent of eruption. In febrile lichen twenty-four hours elapse from sickening to eruption. In small-pox, as we have said, forty-eight. Small-pox almost always appears first on the face; the eruption of lichen is equally developed, from the first, on the trunk and head.

3. The diagnosis of chicken-pox has been already pointed out.

4. There is a form of secondary syphilis, in which an eruption appears on the face and trunk very similar to distinct small-pox. This eruption passes through the several grades of papula, vesicle and pustule. It is preceded by a febrile attack of variable duration. The circumstance has in many instances given rise to the notion of small-pox occurring twice. A case of this kind fell under our own observation very recently. The diagnosis is to be effected by accurate inquiry into the prior history of the case. The pustular syphilitic eruption runs a tedious course, exceeding ten days; and the pustules are developed, not simultaneously as in small-pox, but in successive crops.

Prognosis—The danger in small-pox is dependent on a variety of circumstances, but chiefly on the following:

1. On the quantity of the eruption.
2. On the condition of the mucous membrane.
3. On the state of the fluids.
4. On the state of the nervous system.
5. On the age of the patient.
6. On his habit of body.
7. On the circumstances in which he is placed, and the treatment adopted.

Hoarseness at an early period of the disease is always unfavorable. A natural tone of voice, again, is a good omen, even though the eruption be full and confluent, with a disposition to cellular inflammation. The condition of the fluids is a circumstance by which the physician will in a great degree be guided in his prognosis. Every thing which indicates malignancy and putrescency is highly unfavorable.

Children who grind their teeth seldom do well. Age is a point of great moment in estimating the comparative degree of danger in confluent and semi-confluent cases; the extremes of life are those on which small-pox always falls the heaviest. Persons above forty years of age seldom recover even from semi-con-

fluent small-pox; infants are in danger even from a moderate eruption; in both the process of cicatrization is attended with great exhaustion of nervous power, the result of which is that some internal organ necessary to life (the larynx, brain, or lungs) takes on acute and rapidly destructive inflammation. The habit of body is, of course, also to be taken into account. Small-pox is always aggravated by its concurrence with plethora. The probability of recovery must depend upon the circumstances under which the patient is placed; on the possibility of applying remedial measures effectively; on the treatment which has been pursued in the early stages, and other contingencies which scarcely admit of enumeration.

In certain seasons and states of the air, small-pox is more to be dreaded than at other times.

Treatment.—Variola is a blood poisoning. The morbid agents taken into the stomach through the saliva and absorbed, nature attempts to eliminate through the skin, hence the fever. Now our office is to assist nature, get up an active secretion—act on stomach, skin, kidneys and bowels. By this means we throw off the poison and leave but little to pass out through the eruption. The extent of the eruption depends upon the amount of poison that is to be eliminated. The old practice of endeavoring to keep back the eruption is fallacious. We should endeavor to remove the cause of the eruption, and just in proportion as we do this we abort the disease or reduce the danger to the patient. With this object in view, if we have reason to suspect our patient has been exposed to the contagion we should, during the period of incubation, give a daily emetic of comp. powder of lobelia, administer diuretics and diaphoretics, sulphite of soda in 20 grain doses, three times a day. I am satisfied, from recent experiments, that the sulphite of soda is a real antidote to this specific poison and would advise its use both internally and as a bath during the period of incubation as a prophylactic, and throughout the whole course of the disease. Then to sum up our line of treatment—if the disease is recognized in its early stage, it can be very greatly mitigated, not exactly aborted, but rendered extremely mild. This can be effected in the stage of incubation by daily emetics of compound powder of lobelia, alcoholic vapor baths, secretions regulated, and by drinking freely of a tea composed of equal parts of composition powder and pitcher plant. The former stimulates and cleanses the poisoned mucous membrane of the stomach; the latter acts as a diuretic, diaphoretic, and by its alkaline properties neutralizes the virus in the blood. The pitcher plant is said to be almost a specific here. If we fail, then we must bear in mind that the fever is a salutary effort of nature to eliminate the poison—an effort that must be energetically aided, the fever aided with *asclepias* and *serpentaria* in sweet *marjoram* tea. If constipation prevails, the neutralizing mixture is our best laxative. The patient should be sponged once a day with sulphite of soda. Keep up the vital powers by stimulants—milk punch, beef tea and milk. Watch carefully complications. No depleting agent is admissible where we have a terribly prostrating poison active. Patient should be kept quiet in bed, in a well ventilated room, free from carpets and curtains; bed-clothing, shirt changed daily, sponge promptly. A disinfectant should be employed in the room. Diet—milk punch,

arrow-root, beef tea, gruel, ripe fruit. As a drink give freely of a tea composed of equal parts of composition and pitcher plant. This is the best treatment. The more pitcher plant and composition the patient drinks, the milder the disease becomes, the quicker he recovers. The sulphite of soda is the only known remedy that neutralizes the poison in the human body, and it would seem to do this by certain chemical properties. If the pustules be tardy in filling or maturing beef essence, milk punch, white of egg are excellent. These can be aided with either small doses of macrotin or quinine. Warm drinks must in all cases be given. *No cold water, or ice-cream, nor ice in any form*, should be applied to the patient. All complications energetically met, never using debilitating remedies. For secondary fever—neutralizing mixture, pitcher plant, serpentaria, asclepias. If there is diarrhoea give

R—Fld. Ext. Geranium Mac. 5 i.
 " " Myrica. Cer. " ii.

Mix.—Give thirty drops once in two hours; nourishment, beef tea, soup, cream, raw eggs, alcoholic stimulants to prevent depression and arrest putrescency. For sloughy or gangrenous sores, cinchona comp. et phosphorus, nitromuriatic acid, hydrastia, milk, essence of beef, air cushions. To prevent pitting, smear the face well over with sweet oil, wear a mask and carefully exclude the atmospheric air, olive oil and camphor, glycerine and rose-water, equal parts, lime-water, puncturing the pustules, collodion, gutta percha and collodion, tincture iodine, water dressing, oxide zinc ointment, black salve.

Salicylic acid has been used with marked benefit; in fact, in doses of five to ten grains once in three hours, it has arrested the progress of well developed cases. It appears to be both prophylactic and curative in its effects, and is well worth a trial.

RUBEOLA—MEASLES.

A continued infectious fever preceded by sneezing, watering of the eyes and nose, complete catarrh, accompanied by a crimson rash and often attended or followed by inflammation of the mucous membrane of the organs of respiration. Measles are divided into two grades by some, but this division is uncalled for, being merely different degrees of intensity of one affection.

Symptoms.—After a period of incubation varying from twelve to fourteen days, the disease frequently commences with the symptoms of common catarrh—namely, lassitude, slight chills, sneezing, watery and slightly red eyes, cough, and some degree of hoarseness. More commonly, however, the catarrhal symptoms do not supervene, until the fever is fully developed. The fever is often mild, sometimes it is violent from the commencement. The skin is hot and dry, the tongue white and punctuated with prominent red points. About the fourth day of the fever the eruption appears first on the face, extending gradually down over the whole body. Nausea and vomiting, and sometimes slight delirium, and even coma in violent cases, occur shortly before the appearance of the eruption.

On the sixth day, the eruption begins to fade on the face, but not on the rest of the body; but on the seventh day, it begins to become paler on the other parts, except on the backs of the hands, where it remains vivid until the eighth day, the eruption presents a faint yellowish appearance, and desquamation begins on the face, which, in two days more is completed over the whole body. Occasionally, the eruption comes out as early as the second day, and sometimes, though rarely, as late as the seventh day. The eruption is not uniform, but forms irregular patches, approaching the semi-circular or crescent shape.

Commonly, the face swells considerably during the height of the eruption. The fever does not abate on the appearance of the eruption, but on the contrary increases. The catarrhal symptoms also increase in violence. Diarrhœa often comes on about the time the eruption declines, which when not excessive, is favorable. The fever almost always declines with the desquamation; in some instances, however though rarely, it continues and even becomes more alarming after this period. There is a very strong tendency to pectoral inflammation in this disease. Pneumonia and croup are most apt to occur about the time the eruption begins to decline.

Ear-ache, inflammation and swelling of the eyelids; swelling of the glands about the neck; herpes, porriginous pustules, tumid lip, serous discharges from behind the ears, and tedious suppurations, are among the sequelæ of the disease. These consequences are generally the result of improper management—particularly of incautions exposure to cold and damp air, and sometimes of constitutional predisposition. In children of an irritable habit of body, and disordered bowels, the breathing becomes sometimes much oppressed and anxious although no pectoral inflammation exists. The oppressed respiration here depends on *irritation* and must not be confounded with the oppressed respiration from pulmonary inflammation.

Causes.—The measles, like scarlatina, now prevail in every climate, and at every season of the year, without our being able to trace them to any particular source; so that we must infer that a poison is always in existence and ready to infect the predisposed. It seems to be a law of this and similar poisons that they vary greatly in intensity at different periods; and thus the measles are frequently observed to prevail epidemically rather than sporadically, breaking out with great violence for a certain time and then declining. The disease, however, is more common in open, mild winters, and during the spring than the summer and autumn. Though incident to every period of life, measles are more commonly observed in childhood, at which period the human constitution is very susceptible of this and similar diseases. It is admitted by all observers, that the body of a person laboring under rubeola generates a poison, which either by contact or diffusion through the atmosphere, is capable of producing a similar disease. Measles are, therefore, both contagious and infectious. The contagious nature of this disease has often been proved by direct inoculation, either with blood drawn from the arm of a morbillious patient, or with serum taken from the vesicles which are occasionally intermixed with the eruption. The general evidence in favor of the doctrine of the infectious nature of measles

is strong, and is admitted by all writers. The rapid spread of the disease in families, schools, and other establishments for children, and the difficulty of protecting susceptible persons who happen to associate with the affected, are facts which establish the accuracy of this proposition. It is rarely that individuals are affected by this poison twice in the course of their lives.

Diagnosis.—The only disease with which the measles are likely to be confounded is scarlatina. For the distinguishing characters between the two see *Scarlatina*.

Treatment.—During the whole course of the disease it is proper to attend to all the secretions, and, therefore, if constipation prevails it should be obviated by administering the neutralizing cordial, or leptandria and juglandin, or enemas. To relieve difficulty of breathing and oppression of the chest, counter-irritation over the chest by capsicum and vinegar, or mustard often proves valuable. The entire surface of the patient must be sponged with the alkaline wash once a day. This gives great comfort, allays restlessness, promotes convalescence. Exposure to cold must be carefully guarded against. The patient should be confined to bed, the apartment should be darkened and kept moderately warm. The cough is usually troublesome, and it is usually necessary to give mucilaginous drinks, mild diaphoretics as asclepias and lupulus, syrup of poppies, or simple syrup with cypripedium, and any good acidulated drink. In addition, if the cough proves very troublesome and is attended with great difficulty of breathing, inhaling the vapor of vinegar may prove serviceable. If the febrile symptoms run high give

R—Fld. Ext. Serpentina.....	.....	} aa.
“ “ Eupatorium Per.....	.....	} ʒ iv.

Mix.—Give 20 to 30 drops every two hours until free action of liver and kidneys. When the cough harasses the patient at night, then the diaphoretic powder at night, and

R—Fld. Ext. Prunus Vir.....	} aa.
“ “ Humulus.....	.....
“ “ Lobelia Herb.....	.....
“ “ Dracontium.....	.....
“ “ Syrup.....	ʒ iv.

Mix.—Give one teaspoonful as required. If the diarrhœa prove exhausting, give

R—Fld. Ext. Geranium Mac.....	.....	} aa.
“ “ Myrica Cer.....	.....	} ʒ i.

Dose.—20 drops once in two hours, with a teaspoonful of the neutralizing cordial, but as an open condition of the bowels proves serviceable, it should not be suppressed unless it is violent.

When the eruption of measles disappears before the proper period and there are anxiety, delirium, or convulsions occurring, the indication evidently is to restore the eruption. To effect this, immediate recourse must be had to the warm mustard bath, or the vapor bath, the administration of some of the following remedies, either C. tincture serpentaria, asclepias, or pulsatilla, will be the best remedies. If there be debility, or any malignant tendency, nourishing broths, wine, milk punch, cinchona, are pre-eminently indicated. Although we

inculcate confinement to bed, the avoidance of exposure to cold, and a comfortable room, still the patient should not be loaded with bed-clothes. It is true thorough hygiene should be enforced.

The state of the three great cavities must be carefully watched, especially towards the decline of the eruption, and should any indications arise they should be met promptly on general principles. After the disappearance of the eruption it is proper to give some cooling purgative, juglandin and leptandria; this is worthy of attention, as many troublesome complaints are thereby prevented. After the affection has entirely subsided, the patient should be warmly clad and not allowed to go out too early, and convalescence established upon bark, hydrastis, etc.

SCARLET FEVER.

This is an infectious, contagious, febrile disease, characterized by a scarlet efflorescence of the skin and mucous membrane of fauces and tonsils, commencing about the second day of fever and declining about the fifth, and almost invariably accompanied by inflammation of the throat and its glands. It is essentially a disease of childhood, of a fatal type, occurring, like measles and small-pox, rarely but once in a lifetime.

There are three types of this fever, three different grades of intensity of one affection, depending solely upon the amount of the poison inhaled and the power of vital resistance of the patient. They are thus classified: *Scarlatina Simplex*, where the skin is mostly affected; *Scarlatina anginosa*, in which both skin and throat are implicated; and *Scarlatina maligna*, in which all the force of the disease seems to be spent upon the throat and nervous system.

SYMPTOMS.

Scarlatina Simplex.—It commences with the usual symptoms of the initial stages of febrile diseases. About forty-eight hours after the commencement of the fever, a scarlet eruption appears, first on the face, then on the neck, trunk, and finally over the whole body. This eruption consists of innumerable little pimples running into each other. It is sometimes uniformly diffused, at others it appears in large blotches; pressure with the finger causes a momentary disappearance of the redness. *Soreness in the throat* is generally felt soon after the fever is developed. The skin, during the eruptive stage, is dry, rough and hot; the face is flushed; tongue white with a streak of red around the edges; entire loss of appetite; bowels costive. About the fourth or fifth day the fever and the eruption begin to decline, and in two days more disappear altogether. The cuticle generally desquamates after the eruption has disappeared.

Scarlatina Anginosa.—Eruptive fever more violent than in the preceding variety. Head-ache, nausea, vomiting, præcordial oppression, and muscular prostration very considerable in the commencement. Stiffness and dull pain in the muscles of the neck. The eruption appears on the second or third day of the fever, at which time the fauces exhibit a swollen and inflamed appearance

attended with painful deglutition. Pulse frequent, and more feeble than in the simple variety. Intense heat of the surface and great thirst. Tongue dry and very florid along the edge; great restlessness and prostration. Ulcers on the tonsils, particularly if the fever continues beyond the fifth day. White flakes of coagulable lymph adhering to the tonsils readily mistaken for ulcers. The ulcers generally cast off superficial sloughs as the fever declines, and then heal; sometimes they become foul, and discharge a thin and acrid fluid, which being swallowed, occasions exhausting diarrhoea. Deep and fatal coma sometimes occurs in the stage of excitement. Abdominal inflammation occasionally supervenes. Anasarca, a frequent consequence of Scarlatina Anginosa.

Scarlatina Maligna commences like the former varieties. Eruption at first pale, assuming afterwards a dark or livid red color; very variable in its duration and time of appearance. Heat of the skin variable and seldom great. Pulse at first active, and soon becoming small and feeble. Delirium an early symptom. Eyes dull and heavy, and cheeks livid. Grayish ulcers soon visible on the tonsils—becoming finally covered with dark sloughs. Fauces clogged with viscid phlegm impeding respiration. A thin acrid fluid discharged from the nostrils in the advanced period of violent cases. *Scarlatina Maligna* differs from *Scarlatina Anginosa*, principally in the sudden and dangerous collapse which occurs in the former. The supervention of the collapse announced by diminution of the heat of the surface, great prostration, frequent and feeble pulse, dark brown or black tongue; petechæ and hemorrhage occur towards the conclusion of fatal cases—seldom before the tenth or twelfth day.

Causes.—Epidemic scarlatina occurs more frequently in the autumn months after a warm summer, especially when the heat has been accompanied with continued rains, and when the succeeding winter has been open and mild. It generally disappears during the spring months, though in some epidemics it prevails in every month of the year. It occurs more frequently in the early, than in the advanced periods of life, and in females than in males; so that childhood and the female sex appear to be more predisposed to the disease than manhood and the male sex.

Children and females are much more exposed to the influence of the poison than men, and perhaps all children are susceptible of the influence of the poison, whereas, many adults having passed through the disease in childhood, may be said to be almost exempt from future attacks. *Scarlatina* appears to be a contagious as well as infectious disease. Its contagious nature has been demonstrated by inoculation. The infectious nature of scarlatina is a doctrine scarcely disputed in the present day. The rapid spread of the disease in schools, and its frequent communication to healthy members of families when children have returned home laboring under the disease, or during convalescence, though several weeks may have elapsed from the period of desquamation, are among the more obvious proofs of its infectious nature. It is also the opinion of those who have had much experience in this disorder, that clothing, bedding, or furniture of a room which have been used by patients during this disease, are all capable of infecting healthy individuals.

The period which elapses *after exposure to the influence of the poison* before

it produces its specific effects, probably varies from twenty-four hours to about ten days.

Diagnosis.—The only diseases with which scarlatina may be confounded are measles and roseola. From measles it may be distinguished by the precursory symptoms; by the time intervening between the first accession of fever and the appearance of the rash; by the character of the eruption, and by the sequelæ. Measles commences with coryza, sneezing, suffusion of the eyes, cough, slight dyspnoea and other catarrhal symptoms; while in scarlatina, the first sensation of uneasiness is referred to the throat.

The eruption in measles shows itself on the fourth day of the fever, but in scarlatina it may usually be distinguished on the second. In measles the rash is disposed in irregular portions of a crescentic form, and is slightly elevated so as to be sensible to the touch; in scarlatina the eruption assumes the appearance of broad patches of an indeterminate shape. The rash has a different tint in the two diseases; it is of a vivid red in scarlatina, but of a darker or raspberry hue in measles. In scarlatina, the fever does not abate upon the appearance of the eruption to the same extent as in measles; the former is frequently succeeded by anasarca, inflammation of serous membranes, depositions in the joints, etc. The sequelæ of measles are principally affections of the respiratory organs as bronchitis, pneumonia, croup.

Roseola is distinguished from scarlatina by the partial and regularly defined rash by the absence of the angina, by the mildness of the febrile disorder, and by the short duration of the complaint. Deep rose-colored patches, exactly like roseola, sometimes appear intermixed with the rash of scarlatina.

Treatment.—As a general rule, the successful management of all cases of scarlatina simplex and anginosa is very simple. If there is much nausea, a mild emetic, followed by warm bath, warm diaphoretic teas, as sweet marjoram. Patient should be kept in bed in a warm room, 65 to 75 degrees. Very soft clothing so as not to irritate the skin. The fever should be controlled with:

R—Fld. Ext. Serpentaria.....	} a a.
“ “ Asclepias.....	
“ “ Cypripedium.....	

Mix.—Give thirty drops in warm sweetened water once in three hours. This stimulates the brain, and the whole venous and arterial system, prevents exosmosis, acts as a diaphoretic. To allay the irritability of the throat give:

R—Tr. Sanguinaria	} a a.
Fld. Ext. Dracontium.....	

Dose.—Ten drops every two hours.

As a gargle, use:

R—Fld. Ext. Baptisia.....	} aa.
“ “ Myrica Cer.....	

Mix.—Add one teaspoonful to a pint of water; wash or gargle the throat three or four times a day.

Milk and lime water, beef tea as a diet. Sponging should be very delicately performed; all complications carefully watched. After sponging the body it is often very advantageous to bathe the patient with olive oil. It serves numer-

ous purposes, promotes nutrition, soothes the inflamed surfaces, ameliorates the general condition. If the eruption does not strike out well, give comp. tinct. serpentaria; the bowels regulated with neutralizing mixture. If there are spasms or convulsions, give the anti-spasmodic tincture. No dropsy will take place under this treatment. If met with from other practitioners the cure is usually doubtful, still treatment should be on general principles. In the malignant form no treatment is of much avail, still we should persevere with diaphoretics, stimulants, anti-septics. There is a strong tendency in the medical profession to aggravate the type of the disease, still no one is entitled to pronounce it a case of malignant scarlet fever unless we have a fearful state of depression, decided aggravation of all symptoms, fetor of breath, dark hue on tongue, enlargement and suppuration of the glands of the throat, suppurative discharges from nose, eyes, lungs, ears, eruption of a purplish color. Usually terminates fatally on the third day.

The most common complication is anasarca, serous infiltration of the cellular tissue, dropsy of the three great cavities. It is true the patient may have been exposed to cold, and the escape of the poison through the skin checked, the force of elimination is thus thrown on the kidneys, producing congestion, obstruction and dropsy. But this renal affection is so rarely present where the line of treatment indicated is used judiciously, that we are led to inquire whether the carbonate ammonia, brandy, iron, used by the old empirical physicians, are not the source of the difficulty, whether they do not irritate, arrest urea, or retain it in the kidneys and thus give rise to dropsy. Under the old treatment, dropsy comes on early, begins with chilliness, fever, headache, often vomiting. Face becomes puffy; general oedema. Urine becomes scanty, dark, smoky appearance and contains albumen in large quantities. In the treatment of dropsy great good is derived from:

R. Fld. Ext. Apocynum Can.

Dose.—20 drops, 3 times a day, and in administering one of the following powders, night and morning:

R.—Podophyllin Pulv..... Grs. x.
Bitartrate Potass..... ʒ iij.

Mix.—Make ten powers.

A tea of parsley root is excellent.

It is good practice here to give iron.

R. Tr. Ferre Chlor..... gtts. x v.
Aqua camphor..... ʒ 1.

Mix.—To be given at a dose. As a prophylactic, sulphite of soda in dose of five to twenty grains, three times a day, is of value, and will act well after the disease is established. It is well worth a trial on those who have been exposed to the contagion of scarlatina. The diet should be generous to a fault, warm baths, heat over loins, flannel clothing, etc. A more rational mode of treatment, such as we have endeavored to lay down, is imperatively demanded by the present age. The old school treatment is pre-eminently disastrous to all who suffer.

Better by far is the wet sheet, or no treatment at all, than this pernicious practice. Free elimination by the skin is the point to aim at.

INFLAMMATION.

Inflammation is the process by which local injuries are repaired, and it may therefore be considered as the restorative principle. By inflammation, however, is generally understood the state of a part, in which it is painful, hotter, redder, and somewhat more turgid than it naturally is ; which symptoms when present in any considerable degree, or when they affect very sensible parts, are attended with fever, or a general disturbance of the system. There are four signs that commonly attend it, viz : *redness, pain, increased heat and swelling.*

Redness—Arises from an increase of the red particles of blood in the part. More blood must necessarily be contained there because the vessels which previously conveyed the fluid are preternaturally distended, and the small vessels, which naturally contained only lymph, are now so enlarged as to be capable of receiving red blood.

Pain—Increased sensibility or pain, is owing to distention of the nerves, by the greater quantity of blood determined to them. Parts naturally little sensitive, are quite the reverse when in a state of inflammation. Bones, though nearly destitute of sensation in their healthy state, are sometimes extremely sensitive when inflamed.

Increased Heat—This is not yet generally allowed to exist. Though no increase of heat is manifested in internal inflammation, yet when it occurs on the surface of the body, an alteration sometimes of several degrees takes place. It is said never to exceed the heat of the blood at the heart. This in health is usually about 100 deg. Fahr, but sometimes in disease it rises to 160 deg. or even 170 deg.

Swelling—Is owing in a measure to an increased determination of blood to the part, and also depends on effusion of the fibrin of the blood, which in coagulating, deposits serum in the surrounding cellular tissue. That the extravasation of coagulating lymph has a remarkable share in producing swelling of inflamed parts is unquestionable ; for it fills up all their interstices, glues their whole structure together, and consolidates them into one mass. Frequently, when its quantity is considerable it is converted into a true cellular or membranous texture, or assumes, more or less, the peculiar qualities of different organs. This is very evident in the bones. By means of such change, also, several loose parts may acquire the external properties of denser organs. Thus, the lungs are sometimes turned into a liver-like substance, and hence called *hepatized*. Inflammation may be either acute or chronic.

Acute inflammation usually goes through its various stages with great rapidity. The adhesive stage is marked by hardness and pain ; the suppurative, by irritative fever, fluctuation, and throbbing or pulsation ; ulceration usually succeeds in a short space of time, and the matter is discharged.

Chronic inflammation is exceedingly slow in its progress, and is either the result of acute inflammation, or owing to a peculiar state of constitution, occurring in persons who have lived intemperately, or who have been depressed

by laborious exertions and disappointments. Inflammation may also be either common or specific.

Common or healthy inflammation is the kind we look to for the reparation of an injured part. Shortly after an injury, if inflammation of this character is set up, adhesive matter is thrown out upon the edges of the wound, by which they become perfectly united. In specific or unhealthy inflammation, the vessels have an entirely different action to what happens in the healthy, and thus the fluids and solids which they secrete have a decidedly opposite character. There are two descriptions of specific inflammation; the first is produced by a peculiar condition of the constitution, as in the formation of scirrhus, scrofula, gout, etc., and the second by the application of a poison as in syphilis, etc. The best example of the first kind is scrofula. Persons attacked by this disease, have generally light hair, fair complexion, and a delicate appearance; when inflammation occurs it is slow in its progress, though easily excited; and at last ulceration taking place, the discharge consists of curdy matter, or a thin serous fluid, not at all resembling the pus formed in healthy inflammation.

Gonorrhœa, variola, etc., are good illustrations of the second kind of specific inflammation. Thus, in gonorrhœa, the matter secreted is widely different from common, healthy matter, having in the first place a much larger quantity of mucus mixed with it, and secondly, when applied to a secreting surface, is capable of exciting in the part an action by which similar matter and the same effects can be produced.

The matter of small-pox occasions the same result, and as far as constitutional effects are concerned it does not seem material how large or how small a quantity of the poison is applied, the result in each case depending upon the state of the constitution.

In addition to the kind of inflammation already mentioned, there is another, which I propose to call the *irritable*. In this kind the nerves are more affected than the blood vessels, consequently the parts laboring under its influence are exceedingly tender to the touch. The eyes, the breasts of young women, the bladder and the testicles are very much disposed to this species of inflammation.

Causes.—The true proximate cause of inflammation appears to be an increase of action in the vessels of the part, and an increase in the size of the vessels themselves. With regard to the proximate cause there has been a great difference of opinion. Galen considered inflammation to be produced by a superabundance of the sanguineous humor. Boerhaave referred the proximate cause to an obstruction in the small vessels, occasioned by a lentor of the blood. Cullen and others attributed it rather to an affection of the vessels than a change of the fluids. The question however is by no means satisfactorily explained. The *exciting* causes of inflammation are whatever produces an unnatural state of the parts, calling upon nature for its reparation, which she effects by the process of inflammation, as bruises, pressure, extraneous substances, etc. Mechanical or chemical irritation, changes of temperature and stimulating foods are also exciting causes. Fever often seems to be a remote cause, the inflammation thus produced is generally considered as critical. Spontaneous inflamma-

tion sometimes occurs when no perceptible cause can be assigned for its production.

Inflammation sometimes arises from debility, as is frequently seen in the extremities of old persons in whom the blood returns to the heart with difficulty. From the weakened power in elderly persons, the arteries are called upon for unusual exertion, and inflammation of the skin succeeds, frequently attended with incrustations, and sometimes with a watery secretion into the cellular tissue. Irritable persons are much more predisposed to inflammation than others, and when it occurs in them, it is of a more dangerous nature than in those who are not irritable. Thus in fevers when the constitution has been much weakened, the parts on which the body has been resting become inflamed, and quickly mortify. But in fractures where the system is healthy and strong, although the patient remain many weeks in bed, no such effect is produced.

Terminations of Inflammation. These are quadruple.

1. *Resolution*.—Inflammation is said to terminate in resolution, when it declines and disappears without any structural lesion, or perceptible discharge. Resolution is more prompt in proportion as the organ affected possesses a higher degree of vitality in the serous membranes, the progress of inflammation is particularly rapid.

Resolution is often accompanied by an increase of the natural secretions of the part that is particularly noticed in the mucous and serous membranes; also, in rheumatic inflammation.

2. *Effusion*.—The effusion may be blood, lymph or serum. The termination by effusion of *blood*, most common in the mucous membranes, effusions of *lymph* and *serum* almost peculiar to the serous membranes—the former fluid forms a bond of union between the serous membranes. Such adhesions never occur in the mucous membranes. Serum is seldom abundantly exhaled, until the inflammation has assumed a chronic or sub-acute character. Dropsies are the consequence of this mode of termination. Effusion of lymph into the substance of the solid viscera results in induration.

3. *Suppuration*.—The cellular, serous and mucous tissues are the most prone to this termination; the bones and tendons never suppurate. The mode of suppuration is different in the different structures; in the mucous membranes it is a morbid secretion, the pus having a whitish, cream-like appearance. In the serous membranes pus is formed by a kind of exhalation, and is a thin, whitish or *whew-like* fluid, sometimes mixed with flakes. In the cellular tissue pus collects in circumscribed cavities, called *abscesses*, and is of thick and uniform consistence and pale yellow color, exhibiting under the microscope minute globules suspended in a serous fluid. *Symptoms* denoting the occurrence of suppuration in the inflammation of internal organs, a sensation of weight in the inflamed part; change from the acute to a dull, throbbing pain; rigors; pulse losing its tension and hardness and becoming soft and full; night sweats, and other symptoms of hectic.

4. *Gangrene*.—Never occurs in the cartilages, nerves or bones. The cellular, mucous, and serous tissues, are most prone to it; more common in the peritoneum, than in any of the other serous membranes; of the *mucous* membranes,

that lining the alimentary canal is most subject to it. The occurrence of gangrene is denoted by sudden cessation of pain; sinking pulse; cold extremities; cold sweat; delirium; and cadaverous countenance. There exists in the different forms of inflammation, an original disposition to terminate in one mode, rather than another; thus in boil and whitlow it is to suppurate; in carbuncle to slough; and in mumps to resolve; and this disposition is so strong, that it is very difficult to procure any other termination.

Varieties of Inflammation.—Inflammation occurs under five prominent modifications, corresponding to the five elementary tissues—viz: the *cellular* membrane and parenchyma of the solid viscera; the *serous* membranes; the *mucous* membranes; the *skin*, or *dermoid tissue*; and the fibrous membranes.

1. *Inflammation of the cellular membrane, or phlegmonous inflammation.*—Characterized by great swelling, throbbing pain, and by its mode of suppurating; the pus being collected in *circumscribed cavities*—diffuse cellular inflammation.

2. *Inflammation of the serous membranes, or serous inflammation.*—Pain very acute and lancinating—rapid in its course; no tumefaction; much sympathetic excitement of the sanguiferous system; terminating in the exudation of coagulable lymph or serum, or the secretion of a whey-like pus; adhesions are peculiar to this variety of inflammation; it rarely terminates in gangrene.

3. *Inflammation of the mucous membrane, or mucous inflammation.*—Almost always produced by sudden atmospheric vicissitudes, in consequence of the close sympathy which subsists between these membranes and the skin. Sometimes prevails epidemically. Pain not very severe; unattended with swelling of the subjacent cellular tissue; concomitant fever not intense; never terminates without an increase of mucous secretion. No adhesions ever form.

4. *Inflammation of the skin, or erysipelatous inflammation.*—Pain of the stinging or burning kind; spreading; forming vesicles; never suppurating in circumscribed cavities; dependent on a specific cause.

5. *Inflammation of the fibrous membranes, or rheumatic inflammation.*—Pain intense and aching; does not terminate in abscess or suppuration; terminates by an exudation of a gelatinous matter; or by earthy depositions; is wandering, accompanying fever always synchal; rarely proves fatal except by metastasis to organs essential to life.

Diagnosis of internal inflammation.—The existence of internal inflammation is ascertained by the continuance of the pain; the appearance of the blood; the state of the general vascular excitement, the effects of the external pressure; the effects of position; the character of the functional derangements; the temperature of the skin; and the nature of the exciting causes.

Treatment.—The correct treatment of all inflammations is the administration of such agents internally as will get up a termination to the surface, and stimulants locally.

Such remedies as

R—Fld. Ext. Asclepias Tub.....	.....	aa.
“ “ Serpentaria.....	.....	3 iv.
“ “ Papaver.....	.....	3 i.

Dose.—20 to 40 drops every 3 hours. This tends to equalize the action of the heart and arteries by imparting tonicity to the brain; and by blunting the impressibility of the nerve centres, equilibrium is established. Alternate with

R—Fld. Ext. Cinchona Comp.....	aa.
“ “ Prunus Vir.....	
“ “ Apocynum Can.....	3 ii.

Dose.—30 drops once in three hours. Locally the most powerful stimulants should be applied.

Besides the foregoing treatment, strict attention should be directed to hygiene—rest, diet, sponging, diuretics, diaphoretics, and evacuates.

Effusion of serum.—Serous membranes are peculiarly liable to such a morbid condition, as the periosteum, membrane of the brain, the pleura, and peritoneum; cellular tissue also obnoxious to serous effusion, and constitutes œdema or dropsy; which is rather a mechanical effect than a diseased condition. Serous effusion being a result of inflammation, our object in treatment should be to get rid of the depression. Put the patient under the influence of

R—Fluid extract Cimicifuga.....	aa.
“ “ Eupatorium Pur.....	
“ “ Uva Ursi.....	3 iv.

Dose.—30 drops once in two hours until free diuresis. This should be followed by diuretics, diaphoretics and hydragogue cathartics. The following are the best known formulæ for dispelling the effusion:

R—Podophylin.....	grs. ii.
Bitartrate Potash.....	3 ii.

Mix.—Take at a dose, dissolved in water, and repeat, so that there may be three evacuations per day.

R—Ferri Chlo.....	gtts. xx.
Aqua Camphor.....	3 j.

Take at a dose night and morning. Elaterin, one-twelfth of a grain once or twice daily, will induce free, copious watery stools.

Should these fail give five grains of iodide potassium in a tablespoonful of comp. syr. stillingia three times a day. Alcoholic vapor bath every other day, and flannel next the skin. Effusion in the arm or leg constitutes œdema pits on pressure; then rest, elevation, compression by rollers, friction, electricity, shampooing, simultaneously with the other treatment.

Hemorrhage.—Another result of inflammation may occur prior to or during the activity of the inflammation, or the inflammation may so terminate. Vascular organs are peculiarly liable to hemorrhage—as the lungs, stomach, bowels, kidneys, bladder, urethra and uterus. The asclepias, papaver, etc., should be persevered with, together with rest and external stimulation. If there is hemorrhage from the *lungs* large doses of *lycopus vir*; if the stomach, rectum, kidneys, or uterus, give

R—Fld. Ext. Geranium Mac.....	aa.
“ “ Myrica Cer.....	3 i

Dose.—40 drops in sugar and water. Then a special class of styptics should be resorted to, as, if from the bronchial mucous membrane, salt, iron, oil of

erigeron. If from the stomach, capsicum, salt. If from the kidneys or uterus, viburnum, prunifol erigeron.

In all wounds the vessels should be tied—still there are minute capillaries that often bleed—then exposure of the bleeding surface to the air, elevation, pressure by bandages, cold, perchloride of iron, matico, spider web.

Effusion of lymph.—A common termination of inflammation may occur in active inflammation; but more apt to occur in low grades of inflammation, as the chronic, generally unattended by much heat, swelling, pain or redness. It produces thickening or adhesions, infiltration or induration. Adhesions of serous membranes cause infiltration or induration of glands, etc. The surgeon aims to procure union of all wounds by an effusion of lymph, and for this purpose and with such a view, he removes all foreign bodies, brings the edges of the wound in perfect apposition with metallic sutures, applies dry dressing, and observes that there be no symptoms of acute inflammation existing.

Effusion of lymph for the repair of wasting structures can only occur when the vital forces of the patient are at par. Should the effusion of lymph cause adhesions between serous structures, we must resort to alteratives and absorbents, say

R—Comp. Syr. Stillingia and Yellow Dock..... ʒ iv.
Iodide Potassium..... ʒ j.

Mix. Teaspoonful three times a day.

Apply unremittingly the irritating plaster over the adhesion.

The same treatment is suitable where the glands are enlarged or inflated with lymph, only in addition apply locally discutient ointment, prepared as directed in American Dispensatory, which is an efficient resolvent of lymph; here shampooing, friction or electricity is of but little avail. Where lymph remains effused in or upon any structure, it is apt at any time, should the vital forces of the patient become feeble, to break down, and form an abscess.

The formation of pus—When lymph is effused in acute or chronic inflammation, and as it breaks down the patient is seized with rigors, the pain becomes throbbing or beating in character, the heat diminishes, the congestion and redness disappear.

The abscess points, softens in the center, and becomes pyramidal in shape; it fluctuates and discharges itself, or art is brought to its aid. If the lymph has been thrown out and thickening ensues, it may break down at any time; thus the rigors are the precursory symptoms in softening. Lymph thus broke down constitutes pus. There are numerous varieties of pus, as 1. Healthy or laudable. 2. Serous, when containing serum. 3. Sanious, when it contains blood. 4. Curd-like or cheesy, met with in scrofula. 5. Muco-purulent, when it contains mucus mixed with purulent matter. 6. Lardaceous, if like lard. 7. Specific, when it contains a specific poison, as in syphilis; and 8. Putrid, when dark and offensive.

The accumulation of pus in any cavity, or structure of the body, constitutes an abscess, which may be acute or chronic; invariably a result of inflammation. To aid suppuration—the breaking down of lymph—heat and moisture in the form of a well made poultice should be applied to the part and renewed every

three hours. The best poultices are those made of flaxseed meal, slippery elm, chickweed, clover tops, wild indigo weed ; they should be light, fine, moist and hot. They should be continued until the pus fairly breaks down ; afterward the abscess opened and the poulticing continued, until the abscess has been thoroughly discharged, when a lotion or ointment should be applied. Simultaneously with the breaking down of the lymph nature begins to throw out granulations in the bottom of the abscess, this lymph becomes organized with blood vessels and nerves ; another layer is effused, the same result occurs, and such a process is repeated until the surface is reached, when a white milky scum makes its appearance which gradually overspreads it. The process of throwing out the lymph and its becoming organized' is termed cicatrization, and when the new cutis (which is the milky scum) completely covers it, then a *cicatrice*. It is frequently a point of the utmost importance to determine whether suppuration has occurred. If it happens on a surface where matter is discharged the physical characters of the secretion generally suffice ; but when occurring in deep seated parts, the discrimination of the most experienced surgeon may even fail in forming a correct diagnosis.

Gangrene.—When inflammation is about to terminate in gangrene, pain suddenly ceases, the redness becomes of a livid color, the congestion soft and flaccid, and crepitates when pressed upon, from the fact that it contains the products of putrefaction; the pulse becomes small and wiry and frequent. A typhoid condition supervenes, features become small, contracted, and case soon terminates in death.

The gangrenous part may be a portion of skin, mucous membrane, vessel, bone, or any other individual texture, or other structures may be involved simultaneously. The term slough is employed to denote the death of a portion of the soft parts, and that of exfoliation or "sequestrum" to a dead portion of bone. In gangrene, where yet the parts retain a certain degree of vitality, the object should be to restore the healthy actions, and thus avert the occurrence of mortification. While generally inflammation runs a regular course from a mild form to one more severe, reaching at length to mortification of the affected part, yet in not a few instances it is no easy task to trace any marks of severe inflammation antecedent to the occurrence of gangrene itself. This is particularly observable in such cases as ligature of a main artery, in cardiac affections or where occurring in old age. It is, therefore, of the first importance, in the treatment of gangrene, to ascertain its causes. If the gangrene occurs in a limb, an effort should be made to stimulate a line of demarcation between the living and dying part. Such a line usually makes its appearance in the form of a red blush, which soon rises into a blister; this soon ruptures, forming a line of ulceration with a furrow. The line of demarcation is best secured by applying a warm poultice of soda crackers, well covered with pulverized capsicum, changed as often as it becomes dry.

DISEASES OF SENSITIVE SYSTEM.

BRAIN, SPINAL MARROW. NERVES, AND ORGANS OF SENSE.

INFLAMMATION OF BRAIN.

* This may occur from causes operating within itself, or may be the result of accident; if due to the latter cause, it seldom makes its appearance until six or seven days afterward.

Brain structure being the most vital, it is the most difficult to induce a condition of depression in it. Its symptoms and progress are extremely slow and variable, sometimes sudden, violent, terminating quickly in death; at other times slow, insidious, even unsuspected till manifested by coma or palsy.

Symptoms.—There are some that are characteristic—a general feeling of languor, lassitude, debility, perversion of nutrition, partial arrest of secretion, sleeplessness, flashes of heat followed by coldness, great uneasiness, restlessness, skin remarkably pale, even to whiteness; patient extremely feverish, irritable; mental faculties disturbed; frontal headache, a pain that is aggravated by noise, by heat, motion, light; intolerance of light; pulse feeble but rapid; nausea, anorexia. These symptoms may last a few days or even weeks, then they are followed by violent rigors, great heat of skin, pulse hard, rapid; headache intolerable and throbbing; light insupportable; sound cannot be borne, face becomes flushed, turgid with blood, eyes suffused, lips swollen, tongue coated brown and dry, bowels obstinately constipated; stomach rejects every thing; secretion and excretion are arrested, because the brain, that presides over all is impaired. In addition, violent delirium, coma, paralysis, pupils contracted, and if these are not speedily relieved the third stage follows; then the pulse becomes slow, oppressed, strabismus, low delirium, convulsions, suppression of urine and general palsy, rapidly usher in death. Rigors, followed by squinting, dilated pupil, stertorous breathing, coma, palsy, are indications of an unfavorable termination. If the inflammation extends to the cortical substance and membranes of the brain, early derangement of the intellectual faculties, irritability, constant agitation of the medullary substance, chills, headache, convulsions, lassitude, etc.

Causes.—The predisposing causes are, plethora, stimulants, excessive exercise. Exciting causes are concussions, blows, fractures, mental emotion, metastasis of rheumatism, gout, erysipelas, suppression of some discharge. If the membranes and surface of the brain be inflamed, there will be greater pain, a stronger disposition to delirium and convulsions. In inflammation of the cerebral substance there is an early tendency to coma and palsy.

The medullary substance of the brain is merely the passive servant of the cineritious substance, the conductor of its commands to the muscles; the gray

substance presides over the intellect, the white over movements. Inflammation of the brain may terminate in any of the ordinary results of inflammation, effusion, induration, suppuration, abscess. Chronic inflammation of the brain is often very insidious and difficult of diagnosis, the occurrence of local palsies, and a peculiar change in the urine is a positive diagnostic symptom, it possesses a low specific gravity of 1010, without albumen, a remarkable diminution of coloring matter, of urea, chlorides, alkalies, phosphates, etc.

Diagnosis.—The diagnosis of inflammation of particular spots of the brain cannot be relied upon by any precise symptoms. Pain in the head, intolerance of light, vomiting, drowsiness, coma, slow then rapid pulse, succeeded by jacitation and convulsions before death, indicate that the inflammation is on the surface; if nausea and vomiting are the earliest symptoms, the inflammation has its origin in the cerebral pulp; if the attack begins with convulsions the inflammation has started from the arachnoid, but, as a rule, symptoms variable and insidious.

Treatment.—On the first appearance of symptoms the patient should be put to bed in a cool, well-ventilated apartment, light, noise and heat carefully excluded. The head and shoulders should be well elevated. Then the head should be shaved, and cloths wrung out of tepid water should be kept constantly applied to the bare scalp. To the legs, a mustard roller should be applied from the toe to the knee. Irritating plaster to nape of the neck, renewed if need be, from day to day. Then the next is to open the secretions. Free, thorough purgation is the rule, for which the following is excellent:

\mathcal{R} —Podophyllin.....	grs. ii.
Leptandrin.....	grs. iv.
Bitartrate of Potash.....	ʒ i.

Mix.—Make one powder and give at a dose. If no movement of the bowels takes place, in three hours repeat. Copious enemata may also be resorted to until free evacuations from the bowels are procured. If vomiting is persistent, give tincture lobelia in small doses and apply a mustard sinapism over the stomach. An alcoholic vapor bath should also be given patient in bed, by bringing the fumes of the alcohol up underneath the bed-clothes. After this preliminary treatment has been rigidly attended to, we find the organism better fitted to receive and assimilate medicine. Powerful diaphoretics as:

\mathcal{R} —Fld. Ext. Asclepias.....	ʒ iv.
“ “ Lobelia.....	ʒ i.

Dose.—Thirty drops every half hour; keeping up all the preliminary treatment, bearing in mind that from active purgation in adults we derive the most satisfactory results. To procure sleep is an important indication. This is best done by the administration of large doses of lactuca and papaver, as:

\mathcal{R} —Fld. Ext. Lactuca.....	} aa.
“ “ Pa aver.....	
	ʒ i.

Dose.—Forty drops every hour for three hours, or until sleep is obtained. Repeat every afternoon during the progress of the case.

Or give:

\mathcal{R} —Fld. Ext. Cypripedium.....	} aa
“ “ Scutellaria.....	
“ “ Asclepias.....	
	ʒ iv

Dose.—30 drops once in two hours.

The above might be combined with lobelia and given as above. In numerous cases of inflammation of the brain I have derived the greatest benefit from green lobelia; five grains in pill form given every two hours; prefer it in pill form on account of its slower absorption and being less likely to excite nausea. Lobelia as a relaxant and sedative, has a positive revulsive effect in all brain engorgements; it diminishes the number of respirations, controls the action of the heart, and abates cerebral inflammation. With these and like means we would subdue inflammation and if possible avoid its terminations. We would establish a cure upon a cautious use of phosphorus, iron cinchona quinine, counter-irritation, alteratives, iodide potass. with syr. stillingia, change of air, a cautious use of food and stimulants.

The diet should be extremely meagre—gruel, cracker water, etc.

Chronic inflammation may be an independent primary disorder, or it may be a sequel of the acute form. Its symptoms are much diversified. In some patients we have symptoms very similar to acute, as headache, peevishness, sleeplessness, great mental excitement, either in buoyancy or depression, hesitation in speech, stammering, stiffness of muscles, headache, loss of appetite, constipation, irregularity of pulse, subsequently symptoms aggravated, memory fails, senses impaired, paralysis, general breaking down of all the functions of the brain. This form of inflammation is extremely common, caused by the excessive wear and tear of the brain, incidental to a high civilized state. The most marked causes are mental overwork, over stimulation by excess in drinking, sexual or otherwise, use of quinine and opium, masturbation, shocks incidental to railroad traveling, etc.

In the *treatment*, all causes must be removed and special symptoms promptly met and an active course of counter-irritation and alteratives resorted to; bowels must be kept open, sleep procured, rest and rigid quietness observed; remedies administered that diminish the amount of blood in the brain, as asclepias, lobelia, serpentaria, change of air and location; diet should consist chiefly of vegetables, phosphates and fish, and the use of brain tonics carefully guarded.

Effusion of serum or blood often takes place during the active stage of inflammation. In most cases it is recognized by the contraction of the pupil, tongue drawn to one side, and paralysis of one or both sides of the body. Irritating plaster with syrup stillingia comp.

WHITE SOFTENING OF THE BRAIN.

Cerebral anæmia, long continued, produces softening of the brain. Ramollissement, or softening of the brain, proceeds from inflammation. It resembles gangrene. But while softening is thus produced, it sometimes depends on other causes; from exudation, which is infiltrated among the elementary nervous structures, from a mechanical breaking up of these structures by hemorrhagic extravasations, from fatty degeneration of the nerve cells, independent of exudations; from the mere imbibition of serum, which loosens the connection between

the nerve tubes and cells, from mechanical violence in exposing the nerve centres, from putrefaction.

Symptoms.—The symptoms of the *first period* are: a fixed and violent pain in the head, often continuing for several months; vertigo; *obtuseness of the mental faculties, the memory being weak and the ideas confused*; questions are answered after long hesitation; dejection; querulousness; indifference to surrounding occurrences; drowsiness; tingling and numbness in the fingers; frequently perverted vision and occasionally total blindness; dull hearing, sometimes very acute; frequently nausea and bilious vomiting; tenderness of the epigastrium; constipation; pulse variable, sometimes hard and full; occasionally there is delirium; with fever and much agitation.

The *second period* is characterized by a gradual or sudden paralysis of *one* limb, sometimes of half the body; consciousness and intellect remain; questions are answered with very great difficulty, the patient generally expressing his desires by automatic movements, sometimes perfect coma; death commonly follows in two or three days.

Causes.—Over-exertion, anxiety, excessive sexual indulgence, stimulants, depression, any thing that cuts off the normal supply of the blood; disease in the coats of the arteries, as a deposition of earthy and fatty matter in the walls of the vessels; these and other depositions impede the blood in the capillary vessels of the brain, preventing nourishment, which then passes into a softened state.

Diagnosis.—Softening of the brain may supervene suddenly upon an attack of inflammation, or it may come on in a gradual and imperceptible manner. Insensibility, dilated pupils, slight muttering, delirium, paralysis, contraction of the flexor muscles, constipation, uræmic odor, gradual failure of the memory, œdematous state of the body, wandering, general languor, slow dragging and imperfect articulation, constipation, loss of energy and ambition.

Prognosis.—Ramollissement of the brain has been considered a fatal disease, and is still so when treated with depleting measures, the vital powers becoming exhausted. In earthy, fatty or calcareous degeneration of the coats of the blood vessels, it is still hopeless. But pure softening may be repaired, and a cure effected.

Treatment.—The grand secret of success is to improve the general well being of the patient, improve the blood and neurine by every possible means in our power. Diffusible stimulants should be given every hour, as xanthoxylum, tinct. capsicum et myrrh, but not pushed so strong if hemeplegia has supervened. Stimulate an appetite if possible, by wine, hydrastia, cinchona and other tonics. If there is the least disposition to sinking, stimulants are our only resource, as slow pulse, fainting fits, convulsions, denote anæmic debility. Let the diet be generous to a fault; animal food should have the preference, adding to it iron and phosphorus, and other tonics. The tonic and stimulating plan of treatment always improves, frequently cures. To meet special symptoms, such remedies as cypripedium, scutellaria, lactuca, cimicifuga, cinchona, hydrastia, lobelia, phosphorus, are of the greatest value.

Chronic inflammation of the brain, is prone to follow an acute attack, or it may come on independently. The phenomena which it presents are diversified.

We find either great mental excitement or depression; some absurd desire to be gratified, and, indeed, we have symptoms strongly allied to insanity. Slight hesitation in speaking, slight headache, loss of appetite, constipation, irregularity of the pulse, and as the disease advances, evidences of cerebral disorder become fully developed; the memory fails, the senses become impaired, paralysis shows itself, the health gives way. Chronic meningitis may run its course in a few months, or may last for years. Our treatment should be such as will meet the symptoms very decidedly, at the same time we try by energetic hygienic means to support the general health.

Acute ramollissement, or red softening of the brain, is one of the terminations of the inflammatory process; being often due to both the acute and chronic form of inflammation. The softening is usually partial, the parts affected become pulpy and ultimately of the consistence of cream. It is recognized by the occurrence of paralysis with spasm; or by permanent contraction of the flexor muscles of one or both extremities. If it results from inflammation, the corpus callosum, septum lucidum, fornix, and the cerebral substance surrounding the ventricles, are the parts which suffer. In these instances, the softened matter is infiltrated with pus, while in some cases, the purulent matter is contained in a well-defined cavity, forming abscess of the brain. *Red* softening is the result of inflammation; *white* softening of the cerebral substance, is the opposite condition to the inflammatory, owing to a morbid process and deficient supply of blood. The gray matter of the convolutions at the base of the brain are the parts affected. Imperfect nutrition of the brain is usually due to fibrinous deposit in some vessel which impedes the supply of blood.

Induration is frequently the result of either acute or chronic inflammation; the indurated portion is of small extent, and the change is due to a deposit of albumen.

CONGESTION OF THE BRAIN.

This may arise from any cause which disturb the circulation, as the poison of the eruptive fevers, the irritation of teething, and a great variety of causes.

The symptoms are, uneasiness, restlessness, irritability, disturbed sleep, heat of the head, and pain, which is increased by noise or movements, tension and prominence of the anterior fontanelle, general feverishness, vomiting, and frequently constipation. At the end of a few days, it may be that the disturbance will cease, and the symptoms disappear; or, in more serious cases, we may have the congestion terminating in those formidable maladies, hemorrhage or effusion, or acute hydrocephalus.

Treatment.—This will be varied to meet the indications and circumstances under which the congestion occurs. In all cases the symptoms should be controlled if possible; counter-irritation to the extremities and put the patient thoroughly under the influence of

R—Fld. Ext. Asclepias Tub.....	} aa.
“ “ Humulus Lup.....	
“ “ Lactuca.....	
	5 iv

DOSE.—30 drops in water once in two hours. Apply over the back part of the head cloths saturated with the following mixture :

R—Aqua Dist	O. ss.
Chloride Sodium	3 i.
Aqua Amon	3 i.
Spirits Camphor	3 ii

Mix.—Change frequently. If there is not much depression, active purgation, clean out the intestinal tract, and if there is any suspicion of a loaded condition of the stomach, an emetic of the comp. powder of lobelia. Sleep should be induced, if possible, by

R—Fluid Extract Papaver.

Dose.—30 to 40 drops and repeat until rest is obtained. Quietness, plenty of fresh air, cool apartments, are essential.

Many of our profession begin the treatment with emetics: the comp. powder of lobelia as directed under the head of fever.

After full emesis, the feet are immersed in warm water for ten minutes, then apply to the feet and body a vapor bath, (if no other way, hot steamed stones or bricks) using relaxants and diaphoretics internally, such as will not make direct impressions on the brain. Induce and maintain free perspiration upon the *whole* surface of the body; if necessary, carry the relaxants of lobelia, etc., to vomiting; water or liniment to the head, and sinapisms to the spine—use cathartics and diuretics. In merely passive congestion, occurring during the paroxysms of hooping-cough, or from some abdominal cause, I have found the anti-spasmodic tincture highly useful; attending to the secretions and giving

R—Fluid Extract Iris Ver.....	} aa.
Acid Phos. dil.....	
	} 3 iv.

Dose.—30 drops once in five hours. At the same time, the warm salt-water bath, keeping the head cool, and the body warm, and establishing convalescence upon bark, hydrastia, etc.; nourishing food, beef tea, and soothing or allaying any irritability that may exist. But if the effusion terminate either in cerebral or meningeal apoplexy, the principles of treatment do not vary. A cooling lotion to the head, sinapisms to the extremities, lobelia, asclepias, cyripedium, and if prostration supervenes, stimulants. As a general rule, cerebral diseases occur most frequently in children of serofulous diathesis, and the constitutional taint modifies the disease. The treatment of diseases of the nervous system in children requires the nicest discrimination and judgment. We have tender bodies to deal with; the period of life modifies the action of medicines, and an error in prescribing is usually serious. No child should be treated with depressing remedies; they are dangerous, and many have been sacrificed at this altar. There are several good land marks, diaphoretics to lessen or reduce vascular action; the *warm bath*, a powerful agent for relieving the circulation; *mild purgation*, to reduce the heat. remove obnoxious matter, and encourage a flow of bile; *diuretics* to promote a copious flow of urine; and, in the advanced stages, iris versicolor, and the C (syr. stilingia) with iodide potassium for the purpose of absorption.

TUBERCULAR MENINGITIS.

Irritation reflected from any portion of the body to the cerebro-spinal axis depreciates the nervous system so much that a tubercular or scrofulous diathesis is engendered. This condition may have been hereditary or acquired by teething, worms, bad diet, drugs, irritation of bowels, etc. When this irritation is carried on for a long time, we have irritation of the brain of a tubercular character, tubercular meningitis. Most frequently attacks children under five years of age.

Causes.—The *predisposing* are scrofulous or tubercular diathesis.

Exciting—over feeding, opium and alcoholic stimulants, teething constipation, interrupted secretions, sudden checking of the bowels, any irritation reflected to the brain; vaccination in those predisposed will excite tubercular deposit.

Symptoms.—These are for purpose of convenience divisible into *three* stages.

The *first* or precursory stage is ushered in by some of the following group of symptoms :

Irritability and capriciousness ; headache and fullness, shown by the child frequently putting its hand to its head, or by the head hanging down, sleepiness and drowsiness, occasional dragging of one leg, disordered appetite, vomiting, constipation, elevated temperature, and disturbed sleep ; the stools pale, clayey and offensive ; the tongue moist, red at tip and edges, and furred in the centre ; the pulse quickened, seldom, however, above 120, and often irregular. The child does not close its eyes, grinds its teeth, and often wakes in alarm, is paler than natural, though there may be a transient flush, a peculiar irritative cough is a common and significant precursor. A pinched, drawn, haggard expression is very characteristic. It occurs even early in the precursory stage. Even at this stage, the respiration is quickened a little, is unequal and irregular, and accompanied with sighing and yawning, the temperature is usually increased, though not so much as in other tubercular diseases.

The recognition of this stage of the disease, the duration of which is usually from four to five days, is of the utmost importance ; during this time only has treatment any reasonable hope of success. The supervention of the *second* stage is marked by increased moroseness of the child ; it wishes to be left alone ; at night there is often considerable delirium ; the pulse is slower, falls, perhaps to 80 or even 40, is more irregular, and even intermitting ; slight exertions, however, materially quicken it for a time ; there is more stupor and insensibility ; the child frowns almost constantly ; the face is flushed ; there is much heat of head and pulsation of the anterior fontanelle ; there is heard a peculiar piercing cry. The pupils are often unequally dilated, or there may be strabismus. The abdomen is remarkably shrunken. This stage passes by insensible gradations into the *third*, which is marked by increase in the stupor, often broken into, however, by convulsions.

The convulsions may leave paralysis, usually the same, sometimes of the opposite side. The pulse becomes small, rapid, scarcely to be numbered. There

are clammy sweats. The pupils are widely dilated and motionless. The aspect of the little sufferer is piteous to behold, with sunken face and form, eyes staring and sunk deep in their sockets. Convulsions constantly recur and soon put an end to the scene. It happens however sometimes that an improvement takes place for some days before death.

This is a significant fact in the course of many chronic as well as acute diseases. Just before death a remission of perhaps the very worst symptoms takes place. The pain, which has been agonizing, vanishes; the breathing, which had been so labored, gets easier, the purging, which had been so uncontrollable, ceases; and the patient's friends delude themselves with false hopes.

The physician must ever bear this in mind; it is remarkably conspicuous in many diseases of children, and in none more, perhaps, than in tubercular meningitis.

Ourselves undeceived by it, we must caution the friends from expecting permanent amendment; such second disappointment sickens the heart.

Exceptional conditions.—The symptoms of tubercular meningitis are exceedingly variable, both in character and sequence, and while the above may be considered a correct sketch of the true type, almost every case will vary from it in some particular. The most constant and persistent symptoms are vomiting, constipation and retraction of the abdomen. Hemiplegia and strabismus are not uncommon.

Diagnosis.—From typhoid fever. In the latter disease the following points contrast with the ordinary course of tubercular meningitis. It is common in children above five years old.

There is often no vomiting. The bowels are relaxed. There is tenderness and gurgling, especially in the right iliac fossa, with a tumid abdomen, and abundance of flatus. The tongue is dry. There is more heat of skin and no irregularity of the pulse. Convulsions and paralysis are rare. From simple acute meningitis M. Rilliet draws the following distinctions, it must, however, be admitted that in most cases the two affections are almost indistinguishable:

1. Tubercular meningitis occurs in weak, precocious children, and in those subject to glandular enlargements and skin diseases; whereas in simple meningitis the subjects are vigorous and healthy.
2. Tubercular meningitis is always sporadic.
3. The child previously pines away and suffers from gastro-intestinal irritation. Simple meningitis begins without prodromata.
4. Tubercular meningitis does not commence with convulsions.
5. In simple meningitis headache is if possible more intense, vomiting more urgent, constipation less obstinate, fever more violent, delirium higher.
6. In tubercular meningitis the progress is comparatively slower.
7. The duration is more prolonged.
8. In simple meningitis the disease is more ataxic from the first, and the aggravations more progressive and continuous.

Prognosis extremely unfavorable, few cases recover in which the first stage is past. The duration of the disease is from ten to twenty days.

Treatment.—I. Prophylactic. When one child of a family has died of men-

ingitis the health of the father and mother should be enquired into and improved as far as may be practicable. The mother should in future not be permitted to suckle, but the infant must be reared by a good wet nurse. Besides this, every hygienic condition should be brought to bear upon such an infant. His food, his clothing, his exercise, must all be carefully considered and adapted to his growing necessities. Sea air will always be beneficial, and baths in salt and water as soon as the child is old enough. The diet must be plain, simple and nourishing; stimulants are undesirable. Such a child must be allowed to be backward in his lessons; all attempts at forcing his intellect must be discouraged; his health must be the first and only consideration. The parents must be made to understand the importance of things apparently trifling in his case, such as a little vomiting or constipation. Such a child should never have "home medicines" administered to him. The *Cetraria Islandica* moss is a valuable adjunct in diet, and the syr. hypophos ferri, or compound syr. of the phosphate of iron with glycerine is the best medicines. The bowels must be most carefully regulated and every tendency to any disorder narrowly watched. This will be done by a wise mother without allowing her child to perceive that it is an object of undue solicitude, with quiet, undemonstrative attention, without any fussy, foolish interference. Great tact, great forbearance and firmness will be needed in the education and management of such a child.

2. If the disease be actually established the treatment becomes an anxious and much disputed question. To relieve congestion apply cold to the head, an evaporating lotion, wet rags, ice,—all are beneficial. The hair should be cut close. In simple acute meningitis give diaphoretics, diuretics, and apply cold to the head, warm salt water, or mustard water, or tr. capsicum to feet and legs. Keep down all excitement, have the room darkened, everything quiet, and give beef tea as nutriment, keeping the bowels well opened with some purgative, etc. In the chronic form we should rely upon hypophosphites as

R—Hypophos Ferri.....	{ aa
" Calcis.....	.....
" Sola.....	.....
" Potas.....	.....
		3 iv.

Triturate in mortar and add

Simple Syrup..... 5xvi.

Shake well and give a teaspoonful three times a day. During the waking hours give

R—Fld. Ext. Scutellaria.....	.....	{ aa
" " Lactuca.....	.....
		5iv.

Dose.—10 drops in a teaspoonful of glycerine once in three hours.

The irritating plaster over the spine and nape of the neck, frequent salt-water bathing, perfect hygiene and a good, nutritious diet, keeping down all excitement, the head well elevated in sleep. Under this course some cases will improve rapidly and a cure be effected.

HYDROCEPHALUS.

This is seldom met with as a congenital disease, but is usually associated with disease of the cerebellum. Effusion takes place, the head attains a great size, the manifold sutures yield to the pressure of the fluid, the bones become thin and transparent, the meninges become thickened, and the effusion is uniform throughout the scalp generally, though may be more to one side. The amount of water varies, in some cases only a few ounces, in some several pints may accumulate.

Causes.—Predisposing cause tubercular or scrofulous diathesis, imperfect nutrition, the mother or nurse being of a strumous diathesis.

Exciting Cause.—Constipation, stooping, or anything that tends to produce fullness of blood to the brain.

Symptoms.—Stupor, pallor, slow pulse, picking of nose and lips, dilation or contraction of the pupils of the eye. If remedies take effect, the muscular power returns, the appetite becomes natural, emaciation gives way and general improvement takes place, it may be quite rapidly.

Cases about to terminate fatally will have rapid pulsations, paralysis, coma, and death.

Diagnosis.—Hydrocephalus is often the sequel of some scrofulous inflammation, but may be congenital. There is emaciation, ravenous appetite, small face, large, globular cranium, head drops to one side helplessly, extreme sensitiveness to light, irritable temper, peevishness, imbecile, epileptic fits, rolling of eye-balls, etc.

Treatment.—The primary causes of hydrocephalus and tubercular meningitis are all due to the scrofulous diathesis. Our treatment should be directed to improving, or changing that abnormal condition. As a starting point, we have an enfeebled condition of the nervous system to begin with, and like a stream of water, if the fountain is impure, we have the whole stream vitiated, so the blood is impure, not perfectly elaborated. Children are born with this hereditary taint, this sin of the parents visited upon them. Nourishing food, juice of meat, milk, salt water baths. Give:

℞—Tr. Cinchona Comp.....	§ iv.
Phos Acid Dil	" ii.
Pure Glycerine.....	" x.

Dose.—One teaspoonful morning, noon and night. We must remove the effusion by acting on the bowels, kidneys and skin. To this end we would give the podophyllin powders, as:

℞—Podophyllin.....	grs. v.
Leptandrin	" x.
Bitartrate Potass	" xxx.

Make ten powders. Give one night and morning, follow with:

℞—Comp. Syr. Yellow Dock	O ss.
Iodide Potass.....	3 iil.

Dose.—One teaspoonful three times a day. Apply the following to the head;

℞—Muriate of Ammonia.....	3 i.
Iodide Potass.....	" ss.
Aqua	O i.

Apply three times a day.

CEPHALALGIA.

The symptoms depend upon various causes, and are connected with deficient morbid condition. We have organic headache from disease of the brain. Headache depending upon a congested condition of the cerebral veins is termed plethoric; bilious headache, dependent on deranged, or imperfect action of the liver or stomach; nervous headache, due to debility, or other causes. To sum up the condition present, and which leads to headache, we may state that fatigue, over exertion, mental or physical excitement, all these tend to produce a species of congestion, and weak or debilitated condition of the vessels of the brain, and this tends to headache.

ORGANIC HEADACHE.

Always due to some disease of the brain or membranes. Continued pain in the head, vertigo, vomiting, confusion of mind, noise in the head. The pain is continuous, sharp at times, at others dull and lancinating, more severe in back part of the head, though apparently deep in. When due to inflammation the pain is intense, and is increased by noise, heat and motion.

PLETHORIC HEADACHE.

Essentially a congestion of the brain or its membranes. Sanguine temperament, constipation, sedentary habits, too much sleep, suppression of some secretion, are all predisposing causes, while stooping occupation, etc., are exciting causes, and produce the peculiar throbbing pain which usually attends this form of headache.

BILIOUS HEADACHE.

Common to patients of a bilious temperament; liver and digestive apparatus is always feeble and deranged, coated tongue, and offensive breath; yellow tinge of the eye, appetite impaired.

NERVOUS HEADACHE.

Commonly met with in patients of a nervous, sanguine temperament; common to conditions of impoverished blood; often produced by the irritation of decayed teeth, malaria and other toxical agents; present in all forms of exhaustion, nursing too much; also as a result of excessive hemorrhages, hysteria, sexual excesses, drains upon the system from any cause.

Treatment.—First of all correct the secretions. Act upon the liver, skin, kidneys, and digestive organs; have a well regulated diet; leave off tobacco; use shower baths daily, and endeavor to remove the cause. In organic headache we would give:

R—Fld. Ext. Buchu	3 ii.
“ “ Podophyllum	{ aa.
“ “ Serpentaria	
“ “ Iris Versi	
Tr. Nux Vomica	3 ss.

Dose.—Mix, and give half a teaspoonful in a wine-glass full of sweetened water, three times a day before meals:

R—Fld. Ext. Lactuca.....	{ aa.
“ “ Humulus.....	{ ʒ i.

Dose.—Thirty-five to forty drops half an hour after each meal, and at bedtime. In headache depending on rheumatic tendency, would give the podophyllum mixture, and after meals give forty drops of cimicifuga. In headache the result of catarrh, give the first and follow after meals with :

R—Fld. Ext. Papaver	{ aa.
“ “ Asclepias.....	{ ʒ ss.

Dose.—Twenty to forty drops in water. In bilious headache give the podophyllum, and give half hour after meals, twenty drops fld. ext. dioscorea. In headache the result of habitual constipation, we would give :

R—Fld. Ext Nux Vomica	{ aa.
“ “ Iris Versicolor	{ ʒiv.
“ “ Dioscorea.....	{ ʒi.

Dose.—30 drops after each meal.

When due to chills and fever, nothing acts so well as fld. ext. cinchona comp, 60 drops two to five hours apart, till relieved.

The treatment of cephalalgia will depend in every case upon the cause, which must be attended to before any special good is accomplished.

.APOPLEXY.

This is a state of coma from pressure within the cranium. It is characterized by sudden loss of sensation, thought, voluntary motion, with great disturbance of respiration and circulation.

Causes, Predisposing.—Apoplexy occurs usually after the meridian of life, and the period most subject to it is said to be between the ages of sixty and seventy. The male is much more inclined to the disease than the female. It is often found in men of large head, florid complexion, short, thick neck, broad shoulders, expanded chest, tumid abdomen, low stature, and sanguine temperament. Other predisposing causes are habits of intemperance or inactivity, extremes of temperature, antecedent lesions of the brain or its meninges, and especially degenerations of the cerebral vessels in consequence of chronic and perhaps latent inflammation, derangements of the heart, great vessels, lungs, or any of the abdominal viscera, tumors of the neck and whatever else may disorder the circulation. But particularly productive of apoplexy is hypertrophy of the left ventricle of the heart.

Exciting.—Excesses in eating and drinking or irritating ingesta, narcotics, worms, offensive sordes in the bowels, constipation, the suppression of an habitual discharge, the repulsion of cutaneous eruptions, exposure to the sun or hanging the head over a fire, long continuance in a warm bath or the shock of a cold bath, long exposure to a low temperature and especially the use of stimulating food or drink under such circumstances, violent exertion of the body, especially in a bent position, intense mental exercise, loud haranguing, etc.

SYMPTOMS.

Premonitory.—May supervene without premonition, but is usually preceded by pain in the head acute or dull, vertigo, drowsiness, flushed face, strange noises in the ear, disorder of vision, hearing or taste, hebetude of mind, deep inspiration; numbness of the fingers, paralysis of the muscles of the face, a full irregular pulse, cramps or a sense of fulness in the stomach.

Of the Paroxysm.—Mostly the individual falls down suddenly, deprived of sense and voluntary motion and apparently as if in a profound sleep, with a florid or livid countenance, stertorous breathing, frothing of the mouth, a dull, slow, interrupted circulation, hot head and cold feet, and little or no power of deglutition.

Symptoms when probably the Stomach is primarily in fault.—Preceded by pain in the head, severe stricture across the forehead; a feeling of drawing in the muscles of the back of the neck; vertigo; great confusion of ideas; tremors of the limbs; præcordial oppression; cramps of the stomach or bowels; nausea or vomiting; pallor of the face; universally cold surface, and an irregular pulse.

Afterwards may succeed convulsions or paralysis (mostly hemiplegia), and other marked symptoms. In either the cerebral or gastric variety, life may be extinguished at once. But this is seldom. Rupture of the heart, or large vessels, is sometimes taken for apoplexy. A fatal paroxysm of apoplexy seldom ends sooner than some hours, and usually endures several days.

The paroxysm having lasted for some time, it is not unusual for the full florid countenance to be exchanged for the pallid one; or, on the other hand, for a more inflammatory action to be set up, with a hard, full, accelerated pulse, warm skin throughout, injected eyes, dilated or contracted pupils.

When health has been restored in other respects, the paralytic affection, where it exists is little improved, and the mind long remains impaired.

Diagnosis.—Paralysis of the brain and in some of its forms, coma, and lethargus, are essentially of the same pathological condition.

In *epilepsy* there is much spasmodic and convulsive movement, and especially of the muscles of the face, while in apoplexy there is a suspension of action in the voluntary muscles. In epilepsy the muscles are rigid, in apoplexy relaxed. The paroxysm of the former soon passes off.

A *fit of intoxication* may be distinguished from apoplexy by an inquiry into the history of the case, by the odor of the liquor in the breath, and by the retention of sensibility in the upper lip to the impression of water dropped upon it. Distinguish from *rupture of the heart*, or one of the great vessels by death being in the latter case immediate, and the corpse being pallid. That form of the disease originating in the alimentary canal, may be diagnosticated by the previous occurrence of dyspeptic symptoms, or by the patients having been engaged in a debauch, or having swallowed a narcotic substance.

• The symptoms of the paroxysms differ also. The stomach being the primary seat, there is usually much nausea or vomiting, the face pallid, skin cold, the pulse weak and diminutive, and the respiration comparatively little disturbed.

The case very often resembles syncope. Cases originating in the uterus, etc., may be determined sometimes from their history.

Prognosis.—The disease being uncomplicated with palsy, or, arising from some abdominal disorder, is the more curable. The danger, however, really depends upon the question whether there be merely vascular congestion, or extravasations from rupture of vessels, or otherwise, or effusions from pre-existing irritation, or inflammation, or some of those derangements of structure which are to be noticed.

Recoveries sometimes take place even after the extravasation of blood.

Apoplexy, in its more vehement forms, is always a most fatal disease. Symptoms of bad import are a weak, or exceedingly slow or an irregular, and especially an intermittent pulse, very expanded or contracted pupils, convulsions, and particularly when of one side only.

Post Mortem.—The arteries, and veins of the brain and its meninges turgid or even heavily engorged. Or only a portion of structure is involved. Most commonly, extravasation of blood, which may be deposited either on the surface, or, as is more frequent, in its substance. It is met with between the membranes, on the exterior, throughout the internal cerebral structure, about the base of the brain, and in the ventricles. It may be pure and of florid color, or dark, grumous, or concreted, and may vary in quantity from a few drachms to as many ounces. The surrounding brain may be either hardened or softened.

Sometimes the extravasations are serous or gelatinous. Acute inflammation is frequently discoverable. Besides, may be sometimes observed organic changes, and degenerations of the brain or its envelopes, or diseases of other parts of the body. These are, however, rather the cause of the affection.

Fatal cases of apoplexy may occur without any appreciable change on dissection. Such instances may result from mere congestion; though excessive doses of opium, and ardent spirits appear to extinguish life, independently of the disorder they induce in the circulatory and respiratory organs.

PATHOLOGY.—The proximate cause of apoplexy, in most instances at least, is compression. This is proved by the fact that the symptoms of apoplexy disappear immediately upon the removal of the coagulum, or pressure otherwise exerted, and the symptoms of apoplexy to supervene directly upon the application of artificial pressure to the brain.

Those cases of supposed apoplexy which have been reported as being unconnected with any lesions of the brain, or its envelopes, may have been really instances of rupture of the heart or a great vessel; or of hardening or softening or other alterations of the brain, until recently overlooked; or they may have been affections of the ganglionic system of nerves; or the blood may have been retracted from the cerebral vessels by copious depletion, when it was, however, too late for the brain to recover from the effects of its previous compression, or retracted as sometimes happens, in inflammations, at the time of death. But while it is contended that the lesion of the brain giving rise to apoplexy, is usually dependent on compression, yet it must be admitted that the same condition may exist independently of compression; and this is what was formerly called nervous apoplexy.

Writers have commonly divided apoplexy into the sanguinous and serous

varieties. But such a classification has no practical advantage. The better arrangement is into that form which is a *primary* affection of the brain, and that which is *symptomatic*.

Treatment.—The treatment of apoplexy must be of an active nature. If seen in a paroxysm, we must adopt the most active measures. Among the best means, where there is coma, full, hard pulse, the vessels in the neck gorged, the face flushed or tinged, are the application of ligatures, at once, over the extremities, in both axilla and groin. Then if the patient can swallow, give

R—Fld. Ext. Asclepias Tub	aa.
" " Serpentaria	
" " Lobelia	3 iv.

Dose.—Thirty drops every half hour, to bring the pulse to about sixty-five; friction over the back of the neck and clavicle with tr. capsicum and salt water, is advisable. Apply oil of capsicum and mustard to both limbs. A free use of enemas of flax-seed tea, in which mix ten drops each of fld. ext. podophyllum and leptandria, and eight or ten drops of turpentine. Should this fail to move the bowels and the patient can swallow, give large doses of senna and salts or two drops of croton oil, our object being to get up an action on the bowels in the shortest possible time. If the patient cannot swallow, we must apply ice to the head and spine.

Remove all articles of dress that can cause pressure, give plenty of fresh air. If we find the patient in a state of syncope, with a weak, almost imperceptible pulse, cold, clammy skin, a sighing respiration, we should proceed differently—giving a stimulating treatment, lobelia and capsicum, equal parts tincture lobelia and capsicum, in thirty drop doses, repeated in half an hour; warm stimulating applications to the extremities; and if the stomach is overloaded, give a stimulating emetic of lobelia and capsicum. Bleeding must never be resorted to. Shower baths, perfect hygienic measures, etc., should be adopted to prevent a return. Let the bed be a straw or hair mattress; diet plain, plenty of acids, wine as a drink, avoiding all fermented liquors. This, with strict avoidance of all excitement and exciting causes, will soon overcome the disposition to return. Should paralysis remain as a sequel of apoplexy, which is often the case, then the general line of treatment laid down under that head.

PARALYSIS.

Either a loss of power in the muscles, or loss of sensation, according as the nerves of motion or sensation are affected, or both these states may be united. By *hemiplegia* is meant palsy of one side of the body, from the head downward. By *paraplegia* is meant palsy of a part separated by a transverse plane from the hip downwards. There may be also general palsy (which, however, perhaps never occurs except in apoplexy), and partial palsy, as of a limb, or of a particular sense. Hemiplegia is more uniformly originated in the brain, and connected with cerebral disturbance than paraplegia.

Pathology.—There are two opposite conditions that lead to paralysis—one is

from pressure—too much blood to the brain and spinal cord, producing congestion and cutting off the circulation in the nervous system. The other is where there is a deficient supply of blood to the cord, an anæmic condition where the vitality is deficient.

In the first class of cases we have full plethoric habit; in the latter a weak, pale, emaciated condition. This being the case, it is of great importance to distinguish between them before treating a case.

Symptoms.—Paralysis may occur suddenly, without premonitory symptoms, but usually there is a feeling of languor, heaviness, etc., before it comes on; in some cases it is very gradual. The patient finds an inability to raise the toe from the ground; there may be a sense of heaviness, pricking sensation, as of thousands of needles sticking the skin, finally total loss of muscular power, and inability to bear weight on the same. This may be confined to even one limb, or it may affect the whole body. It is all-important to determine what condition of the circulation we have to contend with.

When there is too much blood to the head we have cramps, irritation and fulness. In treating this class we must avoid all remedies that tend to increase the flow of blood to the head or nerve centre. It is unnecessary for me to enter into full and minute description of paralysis under its many heads or names. The symptoms are so well marked none can fail to recognize it.

Causes.—There are also two great primary or predisposing causes for paralysis—poisoning and exhaustion. Poisoning is generally due to specific mercurial treatment, the use of hair dyes (lead), syphilitic poisoning, bad food, tobacco. Exhaustion is generally the result of abuse of sexual passions, mental labor carried to an excess, excitements of every kind. Paraplegia and local paralysis, however, more frequently proceed from some lesion of the spinal marrow or of the nerve supplying the part.

Diagnosis.—Palsy and apoplexy are mutually convertible diseases and may co-exist. The principal point is to determine the primary seat of the disease—whether in the brain, spinal marrow, nerve, or any particular viscus. This must be done by the associate symptoms.

Prognosis.—In proportion as the individual is older, so is the difficulty of cure the greater. Secondary or sympathetic palsy is more favorable than primary, and palsy originated in the spinal marrow more curable than that of the brain. It has been generally conceded that palsy of the right side is more intractable than that of the left. The first indication of returning sensibility is frequently a sense of formication, or a feeling like the creeping or stinging of ants.

Treatment.—Where there is too much blood to the cord, we should succeed best with scutellaria and iodide of potass. The following will be appropriate:

R—Comp. Syr. Frostwort.....	ʒi.
Iodide Potass	ʒ i.

Mix.—Dose one teaspooful before each meal; give in say half wine glass of water.

R—Fld Ext. Scutellaria.....	ʒ ii.
“ “ Serpentaria.....	“ i.

Dose.—20 drops after each meal.

Give at night, tinct. of cannabis indica, 20 drops to procure sleep.

Friction with salt-water to the spine, with irritating plaster, will do good; avoid strichnine, nux vomica, or electricity in these cases, as they serve to aggravate the symptoms.

In cases where the blood is impoverished, and the supply to the cord diminished, give

R—Hypophosphite Soda.....	}	aa.
“ Calcis.....		
“ Ferri.....		
“ Potass.....		
Syrup Simplex.....		3 ss. O i.

Dose.—One teaspoonful before meals; shake well.

R—Fld Ext Nux Vomica.....	}	aa.
“ “ Iris Versicolor.....		
“ “ Xanthoxylum.....		
		3 ss.

Dose.—20 drops after each meal.

Electro-magnetism will do good in these cases, as also salt-water baths, or shampooing to spine and affected limbs; active purgatives should be administered at least once a week, while daily evacuations of bowels should not be omitted.

Constipation aggravates all the symptoms of paralysis. The above treatment may be alternated with other alteratives, nerve and blood tonics, etc. Under a treatment of this kind, with exercise in moderation, if there is any vitality left, we shall soon find improvement. Paralysis, at best, is very hard to control, and we must bring to bear both patience and perseverance.

In the plethoric variety, the practitioner should be very cautious not to recur too speedily to the stimulating measures, remembering that for this class, especially in the beginning, the disease is one of oppression, and not of debility.

Even in chronic states of it we may find the pulse hard and corded, with other symptoms of a febrile movement, or it may be low from oppression. Under such circumstances, renouncing all tonics, we should betake ourselves to evacuation, and especially to purgation by elaterium, which will be found to recruit the strength by a removal of the disease. The local applications, it may again be mentioned, should be made as nearly as possible to the seat of the lesion in the nervous centre; or when the nerve is effected, as nearly as possible to its root. Friction may be sometimes employed to the muscles, when the disease seems to be primary to them, and there is no excitement. The *prevention* of paralysis is similar to that of apoplexy.

EPILEPSY.

The characteristics of an epileptic fit are a sudden loss of consciousness and sensibility, with convulsions, lasting a few seconds, followed by spasms of involuntary muscles. This is succeeded by exhaustion.

The fits are apt to recur at regular intervals.

Pathology.—Irritation, conveyed to the nerve centre, may be reflected in four different directions:

1, Upon a muscular nerve, causing contraction of a muscle, or muscles.

2. Upon a nerve sensation, giving rise to neuralgia, or nerve ache.
3. Upon a vaso-motor nerve, causing contraction of blood-vessels.
4. Upon a tissue nerve, producing secretions, or an alteration of nutrition.

Under the first head we may class such irritations as the vomiting of pregnancy, convulsions from teething, cough, the result of gastric irritation.

Under the second head, we have irritation reflected on a nerve of sensation, as neuralgia from a wound, after it is healed ; also, from stricture, carious teeth and headache, from irritation of the stomach, etc.

Under the third head, we may class epilepsy—irritation reflected upon a vaso-motor nerve, causing contraction of the blood-vessel supplied by it. Also, the excitation of the motor nerves of a gland, in a state of activity, will cut off the supply of the blood and check its secretions.

The nerve centres are merely glands, elaborating nerve food from the blood. The nerves being but a ramification of or tributary to carry it to its destination, any cessation of the nervous activity may be produced by contraction of the blood vessels by reflex action. From this cause arises loss of consciousness, paralysis, numbness, etc. Sudden contraction of the arteries of the brain, by whatever irritation reflected, is the starting point of an epileptic fit.

As a proof of this we have a sudden pallor of the face, as the patient falls. The irritation, falling upon the laryngeal, cervical and respiratory muscles, bring them into a state of tonic contraction, impeding the arterialization of the blood, hence arises the purple hue that succeeds the pallor of the face and the general convulsion throughout the frame. In a slight fit without convulsion the cerebral artery alone feels the irritation. A less degree of contraction will give rise to vertigo.

Symptoms.—The symptoms of epilepsy are numerous and variable. Sometimes we have well-marked, premonitory symptoms, such as headache, giddiness, ringing in the ears, etc. Again, we have a pricking sensation and drawing in of the thumbs to the palms of the hands, a sensation of fullness in the head.

But often, in fact in many of the cases, we have no warning at all. A sudden deathly pallor, a shriek, and the patient falls senseless, and violently convulsed. These convulsive movements frequently continue for some time, often more on one side than the other. The face and eyes are distended, the tongue often bitten, difficult breathing, the skin cold and clammy, and perhaps involuntary passage of urine, vomiting, breathing labored and almost suspended, pulse weak and irregular. After the attack the patient sleeps soundly and for a day or two remains languid, with headache, etc.

The average duration is from two to five minutes, but may last two or three hours. It may occur at any age, but is most common in the young.

Causes.—Predisposing causes are hereditary taint, strumous or scrofulous diathesis, the marriage of persons who are incompatible by temperament or consanguinity.

We have two forms—*idiopathic* and *symptomatic*.

Under the idiopathic form we class various affections of the brain, and defects in the normal organization, lesion of the meninges, etc.

Under the symptomatic form, we class those cases that arise as symptoms of

some other disease, as irritation from indigestible matter in the stomach, worms, or any irritation reflected from an irritable brain. Derangement of the circulation, stimulation, excessive hemorrhages, suppression of menses, wrong modes of living, sometimes on scrofulous subjects the suppression of an eruption will produce it, venereal excesses, masturbation, pregnancy, fistula, etc., are the exciting causes, but they all operate by a kind of reflex action, by which the irritation is conveyed to the medulla oblongata, or nerve centre, and produces the symptomatic variety.

Diagnosis.—Distinguish from hysteria by the great change of countenance, the livid aspect, the fixed or staring expression of the eyes, gnashing of the teeth or firmly clinched jaws, foaming of the mouth, and the speedy subsidence into a tranquil sleep or heavy stupor.

Hysteria is accompanied by the *globulus hystericus*, by sudden transition from laughing to weeping, etc. But the case may be complicated with hysteria or apoplexy. The disease proceeding from a lesion of the spinal marrow, the convulsions are extremely violent, and sometimes of a tetanoid nature, and the lesion may sometimes be detected by pressure on the spine. In a lesion of a nerve, besides the presence of tenderness, we may also be directed by the paroxysm being perhaps more apt to be preceded by the *aura epileptica*.

Its dependency upon an irritation in some remote organ or tissue, must be determined by the associate symptoms which usually characterize such a condition.

Prognosis.—More unfavorable when the disease is primary, or when it supervenes after puberty or has long continued.

Treatment.—To relieve the paroxysm have the head elevated and warmth to the extremities, and if the patient can swallow give a half teaspoonful of tr. lobelia.

In every case where we have premonitory symptoms, an attack may be warded off by a free use of lobelia and capsicum. In the interval put your patient on a regular course of treatment, varied to suit the condition of the patient.

Among the many remedies in epilepsy, bromide of potass. has stood high with all classes of physicians, but while it may give rest, temporary relief, there is no certainty about it. One of the best remedies is

R—Fld. Ext. English Valerian.....	{ aa.
“ Cypripedium	{
“ Humulus Lup	§ ii.
“ Lactuca	{
Dilute Alcohol.....	§ viii.

Dose.—One teaspoonful before each meal. Give also

R—Fld Ext. Scutellaria.....	{ aa.
“ “ Cimicifuga.....	{ § i.

Mix.—Dose, 20 drops after each meal, and at night give fld. ext. papaver, 20 drops, just before retiring. Keep the bowels regular with the podophyllum, or saline cathartic. Juglans acts well in some cases, as also, pulsatilla and sumbul. These should all be tried in succession or alternation. Remember the arresting of epilepsy does not imply a cure. You must keep up the treatment for months after all symptoms have disappeared.

The above course will arrest any ordinary case of epilepsy. When it has some primary or exciting cause that must be removed, all the functions should be regulated, and the general health built up with nerve and blood tonics, etc.

Drunkenness, scrofula, wine, etc., etc., sometimes cause it, as also, excesses and solitary vices; all of these are to be removed, and under the above course improvement is rapid.

INSANITY.

This is one of the greatest calamities that can befall the human kind. In a healthy and active brain, or nervous system, we have three conditions—objective ideas which arise in external surroundings; subjective ideas which are from religious or strong impressions, and last impressed ideas, as abstract truths, original thoughts, etc.

An impression made upon any of the senses, is at once telegraphed to nerve headquarters, the brain, hence the sense of smell is immediately transmitted to the brain; if the odor is agreeable, the brain approves, and is delighted, if the reverse, it is repugnant and disgusting.

So in the same manner are ideas, thoughts, or instruction conveyed to the brain; if this faculty is impaired, memory deficient and incapable of receiving, acting, retaining or rejecting, or if at all in a disordered way, then we have insanity. To define insanity would require a book much larger than this volume, and to draw the lines between perfect sanity and insanity is a nice thing, indeed. Most of the murders of the present day are attributed, but strange to say, many other crimes due to an over-stimulated, or exalted condition of the sense or feeling involved, are seldom charged to insanity. We have more cases of partial insanity amongst us than we are willing to admit. We will proceed to mention some of the most prominent symptoms:

At first we may have only a partial perversion of the intellect, the chain of ideas is broken, producing incongruous combinations at variance with reason and common sense. We must not jump to the conclusion that this is insanity, without other symptoms. Insanity appears under various phases, according to the part of the brain affected. Severe cases are slow in developing themselves; the prominent symptoms, and those which should excite alarm are headache, giddiness, loss of memory, mental confusion, irritable temper, carelessness, want of application to usual occupations, lethargy, weakness, desire to sleep, tired of life.

The first intellectual faculty that gives way is the memory, strangeness of conduct, imperfect articulation, impaired stomach, obscure thoughts, frightful dreams, sometimes complicated with epilepsy, or paralysis. When complicated with epilepsy, the conduct of the patient is ferocious and outrageous, but, when complicated with paralysis, is quite helpless. When paralysis is a signal or result of mental disease, it increases as the power of the mind diminishes. I am of the opinion that no form of insanity should be recognized but that mental unsoundness the result of disease. There are different forms of insanity.

MANIA.

This is a species of special derangement. Patient may be quite rational upon special subjects, seizing upon some topic, passing from one to the other with great rapidity, ideas are abundant, erroneous, and obscured, manner wandering, sometimes violent and excited. The intellect becomes deranged on all subjects; the moral qualities become perverted, and hatred, rage and quarreling take the place of better qualities. The patient may be conscious of his identity, but the mind operates through a diseased organ, shrieking, crying, laughing, emaciation, want of sleep, loss of appetite. We have another class of cases which we may term

PUERPERAL MANIA.

A form common to women after delivery, usually occupies about four or five days. It commences with restlessness, insomnia, pain in the head, and an arrest of the secretion of milk, sometimes no fever; in other cases febrile exacerbation, debility, prostration from hemorrhages, tedious labor, some morbid poison that has depressed vital power; the delirium is often violent.

MONOMANIA.

A derangement upon some particular subject, which constantly occupies the mind to the exclusion of everything else. I knew an aged woman once very wealthy, who, on the death of her husband, had been left penniless, and ever after she was talking law, and of a pending lawsuit which would, when decided, restore her lost fortune; her insanity was harmless, but unfitted her for every employment.

The reasoning power is impaired, but the logic may be good and correct in the main, yet your patient never leaves his subject. We have several forms of monomania.

DEMENTIA.

This is a weakness of intellect from accident, age, or other causes producing feeble mind; ideas few and confused, vague, wandering, memory much impaired, ignorance of time, place, quantity or quality, quick to forget, are undecided, childish and silly, devoid both of affection or aversion, restlessness, excitement, scarcely any control over the evacuations, etc.

IDIOCY.

Due to congenital imperfection of the brain, mind not developed, ideas few and simple, manners foolish, transient bursts of passion, vacancy, articulation and gait imperfect, may be blind, or deaf mute.

Causes.—Insanity is nearly always associated with diseases of the body. Mind and body must act in perfect harmony; this is an immutable law of nature. In some cases insanity is hereditary, but most cases occur when the brain has reached its most active point, and is easily excited by hard study, over-work, dyspepsia, some drain upon the nervous system.

Injuries upon the head, poison, want of sleep, over-exertion, mentally or physically, hereditary predisposition, etc.

Treatment.—The most important consideration is rest of mind and body.

We want change—change of scene, change of place, change of occupation, a proper amount of sleep is indispensable, the greatest possible attention is to be paid to hygienic rules. Keep the secretions all in healthy, active condition, the skin, liver and kidneys. The sexual organs must be in a healthy condition, and in addition to this we must pay special attention to the removal of other diseases, rheumatism, etc. To meet the mental derangement we would give

R—Tr. Cinchona Comp	℥ viii.
Acid Phos. Dilut.....	℥ ii.
Simple Syrup	℥ vi.

Dose.—One teaspoonful three times a day before meals.

R—Fld. Ext. Cimicifuga	} aa.
“ “ Sumbul	
“ “ Lactuca	
“ “ Humulus	

Dose.—30 drops in water after each meal, and at night give 30 drops fld. ext. scutillaria just before retiring.

When the brain is diseased, the secretions and excretions are in a measure arrested, and we have to give much larger dose than under other circumstances; depleting medicines should be avoided by all means, as they tend to depress rather than benefit.

The treatment of insanity requires special qualifications, and adaptation possessed by only a few. Our insane asylums, as a rule, are not calculated to improve the mind of the patient. Pleasant surroundings, kind, humane treatment, a general building up of the whole system, removing as far as possible all sources of irritation, physically and mentally; attention to diet, hygienic rules, will do more to restore the mental faculties than any other line of treatment. Each case must be treated upon general principles, giving attention to the cause upon which it depends.

CHOREA.

Chorea, or St. Vitus dance, is a spasmodic affection characterized by an entire want of control of the muscular nerves over the muscles during the waking hours, and this gives rise to irregular, involuntary motions of the voluntary motors. It is most common to girls of feeble constitution, or irritable, nervous temperament, and usually appears between the ages of six and sixteen. It is met with in boys, but more rarely.

Pathology.—It is due to want of harmony between the white and grey matter of the nerve centre, or spinal cord. An irritation without such want of harmony could not be productive of the characteristic phenomena of chorea. Although we do not know precisely the nature of the pathological condition of the brain, it may be presumed to be similar to that of the kindred diseases.

Symptoms.—In the commencement of this disease we have nervous depression and irritability—the involuntary motion begins by twitching of the muscles of the face, the other muscles follow, until we sometimes have the whole muscular system involved. The face sometimes becomes contorted, the artic-

ulation becomes indistinct, and the temper irritable in the extreme, appetite is very irregular, bowels constipated. In some cases only one side is affected, in others the whole system is affected.

Irregular action ceases during sleep, as a rule, though I have had one or two cases that even during sleep were moving and trembling.

The disease may last for months and years if not properly treated, and the longer it runs the harder it is to control. Very rarely the respiration is affected, and occasionally even the heart is involved.

Causes.—Among the exciting causes we have anæmia or impoverished condition of the blood, worms, teething, indigestion, or disorders of the stomach. Eruptions of the skin, diseases of the kidneys and bladder, retarded or interrupted menstruation, sudden change of temperature, secret habits and pregnancy, want of nutritious diet, loss of blood, mental emotions of fear, joy or grief—and children of scrofulous diathesis are prone to this among other nervous disorders.

Diagnosis.—We must endeavor to determine the location of the primary irritation.

Prognosis.—Little immediate danger, though the degenerations of the disease have proved distressing, or even destructive of life. Occurring near the age of puberty, a good hope is afforded that the changes effected by that epoch may eradicate the affection.

Treatment.—In treating chorea or St. Vitus dance, if we expect to succeed we must make an entire change in the patient. Change of air, of occupation, of diet, plenty of exercise in the open air. Let the diet be highly nutritious—in a word, build up your patient as rapidly as possible. The exciting cause must be removed at once; if we cannot determine upon what that depends, we must watch our patient closely. The whole nervous system being in a highly excitable condition, and the least over-excitement will often develop this diseased action. In treating this disease, I have found the following indicated in most cases:

R—Iodide of Potass..... $\frac{3}{4}$ i.
Syr. Stillingia Comp..... $\frac{3}{4}$ xvi.

Dose.—One teaspoonful in a wine glass of water before each meal. We would regulate the various secretions by appropriate remedies:

R—Podophyllin.....grs. iii.
Leptandrin.....grs. iv.

Mix with sugar of milk and divide into four powders giving one every second night. If we suspect worms, give:

R—Santonine.....grs. ii.

at night and follow with the purgative powders as above; or in place of santonine give a few drops of turpentine, and follow with tonics—say forty drops of tincture cinchona before each meal. Where we have debility or impoverished blood, give syr. hypophosphites. Where we have great excitement and irritation of the nervous system we should give:

R—Fld. Ext. Cimicifuga..... $\frac{1}{2}$ aa.
“ “ Cypripedium..... $\frac{1}{2}$ ss.

Dose forty to sixty drops three times a day. At night to produce sleep, give fld. ext. scutellaria, thirty drops.

Electricity properly applied is good in most cases, but I would not advise it unless applied by a practical operator. Frequent baths of salt water, warm or cold, are advantageous. Purgatives must be repeated at least every second night, and given in such dose as will produce free evacuation. We can do little while constipation prevails. This treatment will prove effectual in every case if persevered with.

DELIRIUM TREMENS.

As is well known, this is caused from the poisonous effects of alcoholic liquor acting directly on the brain. Just how it acts in this way, we can only infer from the appearance of the brains of persons dissected who have died from this poisoning. In these we find induration, a shrinking of the brain in spots, forming an impassible barrier and cutting off nutrition and the passage of the blood through the brain.

Symptoms.—The symptoms of delirium tremens are too well known to need a minute description here. The skin is usually cool and moist, pupil contracted, white of the eyes assumes a pale appearance, mental derangement, wild expression of countenance, eyes fixed intently upon some imaginary objects, constant dodging, and endeavors to avoid them; going through all kinds of motions and with a rapidity astonishing to behold. We have tremors, flabby, moist tongue, pulse nearly natural. The mind is wandering and delirious; general appearance of debility, sleeplessness; delirium worse towards night, incessant talking, great prostration. All of these conditions depend upon want of circulation in the brain, or rather want of nutrition.

Cause.—Excessive and long continued use of alcohol. This poison has a specific action on the brain, first producing slight inflammation of its substance. This, long continued, brings about induration and anæmia.

Treatment.—The undue excitement of the nervous system is rapidly wearing out the vital powers, and would, if long continued, lead to final exhaustion and death; hence the indications of treatment are very plain. We must subdue excitement of the nervous system, which is rapidly consuming the patient. To this end I would give lupulin, and I do not believe it has an equal in the materia medica. Give it thus:

R—Fld. Ext. Lupulin	5 ss.
Tr. Capsicum	5 i.

Dose.—Thirty drops every two hours till the tremors stop and the patient is calm. We must support the system by stimulants and good nutritious diet; we must purify the system from this alcoholic poison. A partial arrest of the functions of the brain is always attended with a corresponding arrest of all the secretions of the system.

The urine is diminished—urea, a terrible poison in itself, is thrown into the blood, the bile accumulates and we have in addition to alcoholic, a ureamic

poisoning of the system. To correct this condition we must give a warm alkaline bath. Place your patient in bed, give the lupulin and capsicum or essence of Jamaica ginger, plenty of liquid nutritious food. There can be no doubt that capsicum is the very best stimulant for deficient circulation in the brain, and we often find our patient sleeps soundly after the first dose. It not only has a stimulating influence on the brain, but on the pneumo-gastric nerve and in fact, is a splendid stimulant, and this with lupulin, is about all that is needed to treat any case of delirium tremens. We should give fluid nourishment, beef tea, and keep the patient quiet and room dark; all sources of mental irritation to be removed, shower baths, cold effusions.

We shall find ten drops tincture nux vomica very good to establish convalescence, or cimicifuga is good when there is nervous excitement, with threatened spasms. To prevent, or cut short an attack of delirium tremens, I would advise lobelia. Give it at any stage of the case a teaspoonful dose of the tincture, and repeat as often as indicated.

Establish convalescence on bitter tonics, and prohibit the use of alcoholic stimulants.

COUP DE SOLEIL. (SUN-STROKE.)

This condition is attributable to two causes :

1. To a direct want of serum in the blood, the watery constituent being drained off by a high degree of dry heat.

The second cause we attribute to the direct depression of the nervous system, interrupting the functions of the eliminating organs, the lungs, liver, kidneys, and skin. The blood is imperfectly organized, and being drained of its serum it has a tendency to coagulate in the coats of the vessels, and even in the brain and heart. The bowels are generally constipated, the liver torpid, and the secretion of the urine is diminished. This clotty condition of the blood, or the depression on the nervous system, gives rise to faintness, a craving for water, heat, and dryness of the skin. We have regular nervous depression, vertigo, fulness in the head and chest, pulse quick, irregular feeble and small.

Symptoms.—These are variable. We sometimes have a sudden seizure, paralysis, shortness of breath, preceded by languor, lassitude, etc. Paralysis and insanity is often a sequel of this clotty, or coagulated condition of the blood.

Treatment.—In treating this derangement my remedy is water—water locally, water internally. Keep blankets saturated in tepid water applied to the whole body. Give water to drink, and water as an injection. The blood is deficient in the watery principle, hence we endeavor to supply the deficiency by the direct application of water. Give an emetic of lobelia and capsicum, plenty of tepid water, after the stomach is unloaded. We shall find the administration of such medicines as increase the solubility of the blood advisable. Give

℞—Leptandringrs. iv.
Sugar of Milk.....grs. xx.

Mix and give the whole at night. Then follow with

R—Fluid Extract Xanthoxylum...	℥ i.
Tr. Capsicum.....	℥ ss.
Aqua.....	℥ ss.

Dose.—One teaspoonful before each meal and continue the application of water to the body; friction over the spine will do good. Give no alcohol. Let the clothing be adapted to the temperature of the body—free and easy.

TETANUS.

Tonic spasms of the voluntary muscles, the powers of sensation and thought remaining unimpaired. Tetanus is divided into different varieties, viz: *trismus*, *opisthotonos*, *emprosthotonos*, *pleurothotonos*. In the first, the muscles of the jaw are chiefly affected; in the second the extensions of the back, producing recurvation of the body; in the third, those on the anterior part, producing incurvation; and in the last, those on the side are principally affected, causing lateral curvature. It is divided also into *idiopathic* and *traumatic*—the former variety being the result of general causes—the latter of external injuries. This division has an important bearing both on the *prognosis* and treatment of the disease.

Symptoms.—Its approach is almost always gradual, the symptoms being developed in the following order: Slight difficulty of deglutition and change of the voice, an uneasy sensation in the præcordial region; stiffness in the muscles of the neck and jaws. These symptoms having increased to a considerable degree of violence, sudden painful retractions about the ensiform cartilage, with simultaneous retraction of the head occur. Deglutition is painful and difficult, and re-excites the spasms. The spasms acquire more and more violence and frequency, until the retraction of the head, and rigidity of the whole body become truly frightful. The appearance is terrible, the face pale, bloodless, contracted brow, skin of forehead is wrinkled, eyes fixed, prominent, sometimes almost bursting from their sockets, at times diffused with tears, intense thirst, patient may doze but cannot sleep. The mind is seldom affected, the appetite generally remains, and digestion goes on regularly. Costiveness almost always attends. The muscles supplied with ganglionic nerves, and those which move the fingers, remain free from spasm, until near the fatal termination of the disease. The disease usually terminates before the fifth or sixth day—sometimes it continues much longer; and occasionally it assumes a chronic form.

Causes.—Various injuries. Contused, lacerated and punctured wounds most apt to produce tetanus. A partial division or laceration of a nerve apt to excite it. The introduction of cold, damp air into gun-shot wounds, when casting off their slough, favors the development of tetanus. The application of caustic to encysted tumors, compound fractures, the insertion of artificial teeth, amputation, ligatures including nerves, cutting corns too closely, etc., have all frequently produced the disease. Cold and damp night air, after fatigue and exposure to a high degree of atmospheric heat during the day, is the most common general cause. Hence its frequency in tropical climates. Atmospheric heat is

a powerful *predisposing cause* of tetanus. Traumatic tetanus generally comes on about the eighth or ninth day after the infliction of the wound ; frequently not until it is cicatrized.

Proximate cause.—The original seat of the disease is in the *spinal marrow*. It certainly arises from effusion. This is the true condition, and appears as a long standing, spasmodic contraction. This supported by the post mortem appearances, and the circumstance that the muscles supplied by spinal nerves are almost exclusively affected.

Prognosis.—*Traumatic tetanus*, seldom cured. The idiopathic form less difficult of cure. The disease always terminates fatally when the pulse rises to 120 beats in a minute on the first day ; if by the fifth day it does not exceed 110 a favorable issue may be expected. The favorable signs are : a very gradual supervention of the disease, abdomen not very hard, bowels easily moved, moist and moderately warm skin, sound sleep, an increased flow of saliva, a natural expression of countenance. When the majority, or all of these circumstances occur, we may entertain hopes of recovery. The unfavorable signs are : a sudden and violent invasion of the disease, great rigidity of the muscles of the back, neck and abdomen, violent pain and retraction in the pit of the stomach, very hard and retracted abdomen, spasmodic twitches of the muscles of the neck and jaws, on firm abdominal pressure hydrophobic symptoms.

Treatment.—Divide into *prophylactic* and *curative*—the former refers to the *prevention*, the latter to the removal of the disease. Wounds or injuries from which tetanus is apprehended, should be brought to suppurate as soon as possible. For this purpose scarification, free division with the knife, irritating applications—such as spirits of turpentine, caustic, etc., are employed. When the disease has made its appearance, *constitutional* are to be used conjointly with the local remedies. The most important of these, and the only treatment likely to prove effectual, is a combination of lobelia, capsicum, and valerian, as follows :

R—Fld. Ext. Lobelia.....	aa.
“ “ Valerian.....	3 i.
Tr. Capsicum.....	3 i.

Mix.—Give thirty drops every hour, introduce it between the teeth and throw it up the rectum at the same time, until complete relaxation is established. If this does not seem to act quick enough, give chloroform ; inhale it until relaxation is complete, then follow with :

R—Fld. Ext. Podophylum.....	aa.
“ “ Leptandria.....	—
“ “ Iris Versicola.....	gtts. x.

Give at a dose. Keep up the relaxation, and then give

R—Fluid Extract Scutellaria.....	aa
“ “ Cypripedium.....	—
Tr. Capsicum.....	3 i.
“ Lobelia.....	3 ii.
Aqua.....	3 ii.

Dose.—One teaspoonful every three hours, alternate with, say, twenty drops of fluid extract pulsatilla, and every two hours apply ice to the spine, dry cup-

ping, etc. If you can keep your patient along four or five days, you will be able to overcome the disease by absorption of the effusion, and get up a reaction. Remember it is a disease that death is the only alternative, and that, if the treatment appears heroic, keep in mind the fact it is a disease that will admit of no half-way measures.

HYSTERIA.

This may be defined as a nervous disorder, assuming various forms, but commonly presenting a paroxysmal character. A most Protean and imitative disease.

Pathology.—An exalted excitement, congestion, or phlogosis of the brain, which is either primary or the consequence of an irritation of the spinal marrow, uterus, alimentary canal, or other part.

Symptoms.—It may be preceded by various *nervous* phenomena, præcordial tightness, flatulence, nausea, or vomiting, or may come on suddenly. On the latter occasion, the earliest indication is constriction of the chest, pain about the flexure of the colon, with a sense of fulness, and a rumbling which advances to the stomach, and thence to the throat, occasioning pressure as of a ball lodged there, and called *globus hystericus*. The preceding symptoms are soon followed by coldness and shivering, a fluttering pulse, and such acute pain in the head as to be compared to the driving in of a nail, and hence called *clavus hystericus*. The chilliness is followed by no reaction. Convulsions ensue, varying from the slightest to the most violent. The trunk is contorted backwards or forwards, or to the sides, the limbs are agitated, the hands clenched, the sphincter ani firmly closed, while the sphincter of the bladder may be relaxed, and emit copious streams of pellucid urine. During this period there are wild shrieks, incoherent expressions, alternations of laughter and crying, and a constricted respiration.

As the paroxysm subsides, deep sighings or sobbings take place, eructations of wind, a gradual restoration of the senses, but without any recollection of the events of the paroxysm; though sometimes, long after the subsidence of the fit, there remains a state of stupor, with flushed face, or, on the other hand, a pale, cadaverous appearance, with great languor. There may be either a single paroxysm, or a succession of them for several days.

Causes.—May occur either in the male or female sex though it is far more frequent in the latter. It hardly ever occurs prior to the age of puberty, or in advanced life. Single women and young widows are most liable to its attacks. The *predisposing* causes are, nervous temperament, heated rooms, reading works of fiction, tight lacing, lack of exercise, habitual indulgence in amorous desires, nervousness, luxurious living. The *exciting* causes, mental impressions, irritation, sudden suppression of menstrual discharge, uterine irritation, leucorrhœa.

Hysteria has long been regarded as dependent on spinal irritation. From the extent of the spinal cord, and its connection from one extremity of the

trunk to the other, and its connection with the cerebral nerves, it must exercise an extensive influence on the phenomenon presented by various diseases.

Diagnosis.—Be careful to ascertain the origin of the disease. Proceeding from a uterine, or gastro-enteric affection, it will be probably accompanied by symptoms which when duly weighed will indicate the primary source of irritation. Being of primary cerebral origin, we find headache, a florid face, vertigo, tinnitus aurium; while its arising from the spine, is denoted by tenderness of some portion of the spine, and the violent tetanoid spasms.

Prognosis.—There have been few cases reported of a fatal issue of the paroxysm. The disease may, however, degenerate into epilepsy.

Treatment.—The milder attacks are usually treated by the application of pungent odors to the nostrils, or the internal administration of the antispasmodics. Dashing cold water in the face, with sinapisms to the extremities.

An emetic almost always restores tranquility, and obviates a renewal of the paroxysm. The best emetic will be the comp. powder of lobelia, given in small doses, every fifteen minutes until free emesis.

Purges and enemata, particularly where we suspect irritating accumulation in the intestines, or where constipation exists. Nervines and antispasmodics—among the best combinations of this class is—

R—Fld Ext Lobelia	}	aa.
“ “ Scutellaria		
“ “ Cypripedium.....		
Tr. Capsicum.....		5 ss

Dose.—Forty drops in water, once in three hours, when we have premonitory symptoms.

If due to uterine troubles that must have attention, and among our best remedies here are caulophyllum and helonias.

R—Fld Ext Caulophyllum.....	}	aa
“ “ Viburnum.....		
“ “ Helonias dioi.....		
“ “ Senecio.....		
		5 i

Dose.—Twenty to forty drops three times a day. At same time give the hypophosphite comp., or cinchona comp. to build up the system. When due to spinal irritation, capsicum plaster to spine with active nerve and blood tonics will succeed.

NEURALGIA.

A disease of comparatively modern origin, but little known a century ago. The term neuralgia signifies *nerve ache*.

This disease may affect any of the nerves in the body, and being seated in the nervous centre, the pain darts along the nerve to its minute ramifications, or conversely, arising at the branches, may be reflected at the centre. But in its course, it is apt to entangle other nerves of the same, or a different class, and render the aspect more complex.

Pathology.—The disease though having generally a local, may have also a constitutional origin. It seems certain though inflammation of a nerve, or nerve

center may supervene upon neuralgia, that yet it is not an essential ingredient of it. Still the disease may commence in a neuritis or myelitis, or phrenitis, which may be exchanged for neuralgia, or their may be inflammation at the root of a nerve, and in the branches a mere neuralgia, which may enjoy an indefinitely protracted and independent existence after the reduction of the neuritis. The nature of the pain and the effect of the medicines, are much diversified by the affection. It seems to be seated, however, only in the nerves of sensation, and is associated with a state of exceedingly exalted sensibility—a state the opposite of that of palsy.

Symptoms.—The attack may come on without any premonition or may be preceded by dyspeptic, uterine, or arthritic disturbance. Decidedly paroxysmal in the commencement, the paroxysms observe the laws of periodicity, in imitation of an intermittent. When chronic, however, it is less paroxysmal. Immediately precursory, are often to be noticed a sense of chilliness, slight disorder of the stomach, pallor, and sometimes a sense of formication, or the aura epileptica. The paroxysm is made up of transient paroxysms, between which there are commonly remissions of comparative ease. The pain shoots along the nerve, following its distribution, and is sometimes terribly severe. The part is so tender that the slightest touch cannot be tolerated—even less tolerated than firm pressure. Redness of the part sometimes occurs. Twitching of the adjacent or remote muscles, is occasionally observable. The circulation is little changed.

The duration of an attack varies from one to two hours to several days. The attack may not return for a week, month or year. Neuralgia most frequently assails the three divisions of the fifth and the facial portion of the seventh pair of nerves. It often attacks the intercostal muscles, those of the shoulder, loins, hips, the large articulations, the scalp, mammæ and testicles. The brain, too, as well as other viscera, is subject to it. It may be confined to a spot no larger than a pea.

Causes.—*Predisposing*—most incident to the period of life between forty and sixty; to the female with a delicate, irritable, or shattered constitution. But exceptions to the last statement are numerous. It is apt to attack in a mitigated form, girls at the age of puberty, or a little later. Mechanical injuries of nerves from wounds, or from the pressure of spiculæ of bones or tight lacing; the chemical action of the fluids in caries; dental irritation in facial neuralgia, miasmata, excessive venery, or masturbation, dyspepsia, or lesions of any of the viscera (though it is probable that many cases attributed to these causes are really founded in atonic, or misplaced gout), anæmia. *Exciting*—exposure to cold, moisture, or a draft of cold air, undue corporeal or mental exercise, the emotions, or slight mechanical disturbance.

Diagnosis.—Distinguished by the acute pain darting along the nerves, its occurrence in paroxysms, and the absence of inflammatory signs. It bears the closest analogy to *neuritis*, or inflammation of a nerve, and particularly in case of the tooth. But this may be distinguished from genuine odontalgia, by its being deep-seated, more obtuse, permanent, ultimately followed by swelling of the cheek and gums, and by its ending in suppuration, etc. It is distinguished

from *rheumatism* by the difference of the predisposing and exciting causes, the difference of the seat of the pain, the absence of fever and inflammatory signs, its not impairing the construction or structures, even when protracted, and the different effect of remedies. It is very important, though sometimes difficult, to elucidate the source of the disease.

Emanating from the head, the case is preceded by giddiness or other uneasiness of the head, disorder of some of the senses, congestion or increased action in the vessels of the brain, with a sympathetic affection of the liver or stomach. The symptoms of the superior cervical division of the spinal marrow, are pain in the scalp, shooting in various directions up the occipital even to the frontal portion, or laterally along the temples over the face, or sweeping behind the ears, or around the lower jaw, productive of rigidity of the muscles, impeding its movements and those of the head.

In an implication of the inferior cervical portion, the pain is seated in the superior part of the chest, about the clavicle or scapula, or it runs down the arm, sometimes even to the fingers; or passing forward, the superficial integuments, or the *mammæ* in females, may be involved in exquisite soreness, or intense, darting pains. The upper part of the dorsal division being affected with many of the symptoms just mentioned, it is more strikingly characterized by pain in the intercostal muscles, or margin of the ribs, or sternum, or epigastric region, or integuments behind the chest, the acuteness of pain being occasionally exchanged for dyspnœa in various degrees.

The lower dorsal division being affected with some of the preceding phenomena, we have a sense of constriction across the waist, and great tenderness and darting pains in the parietes of the abdomen. In disease of the lumbar and sacral section, there is a dull ache, or acute pain in the muscles of the loins, and those of the hips, with a pain shooting down the lower extremities, and the tottering gait of an inebriate. The ganglia, or branches of the sympathetic being involved, we have depravations of function or true neuralgic pains of the organs deriving their nerves from this source. Thus result palpitations, spasmodic asthma, angina pectoris, cramps, colic, gastralgia, etc. Connected with these disturbances, we may find great vitiation of the secretions, as in pyrosis, the diabetic discharge, etc. But generally in protracted cases one set of nerves implicates another. This is particularly the case of the spinal and ganglionic nerves. The former, indeed, have seldom a distinct affection. In colic is exemplified the implication of the nerves of the back, the pain in which is as great as that in the bowels. The most certain test of spinal disease is, undue sensibility betrayed by pressure, or percussion of the vertebræ, or sponging with hot water.

Prognosis.—Rather difficult of cure, especially in old cases but under our American system is favorable and a cure is readily effected when not due to spinal lesion, or some extraordinary irritation. Those are most favorable, which are seated in the spinal marrow; and those seated in the ganglionic nerves the least so, especially when connected with depravation of the abdominal viscera. The disease, however, cannot be regarded as fatal, and it often disappears spontaneously, or under the influence of some new disease, especially an erup-

tive one, or a revolution in the mode of living, or merely the shock of a mental emotion.

Post-Mortem.—In most instances no appreciable lesions have existed. In many the lesions were probably the cause instead of effect of the disease. In a few cases the vessels of the neurilemma were found preternaturally turgescient; and the nerve had an unnatural floridness, was thickened, but wanted the effusion of serum, lymph, or pus, with the general changes of structure incident to neuritis.

Treatment.—The treatment of neuralgia resolves itself into curative and prophylactic. When called to a patient suffering from a severe attack of neuralgia, we should order an emetic of the comp. powder of lobelia. When we have free action of the emetic, follow with alcoholic vapor bath, then give :

\mathcal{R} —Podophyllin.....	grs. ii.
Leptandrin.....	grs. iv.
Bitartrate of Potash.....	℥ i.

Divide into four powders and give one every six hours until they operate. During the continuance of the pain give :

\mathcal{R} —Fld. Ext. Lactuca	} aa.
“ “ Humulus.....	
	℥ ss.

Dose.—Twenty drops every two hours. This will give rest, and if the neuralgia has assumed a periodic form, we should give the emetic daily, say two or three hours before the time of its return, and in the interval give :

\mathcal{R} —Sulphate Quinine.....	} aa.
Prussiate Ferri.....	
Pulv. Capsicum	
	grs. xv.
	grs. x.

Make ten powders and give one every two hours until five are given. To prevent a return and make a permanent cure, we would put the patient under the influence of an active alterative, as :

\mathcal{R} —Syr. Stillingia Comp	℥ i.
“ Iodide Potass	℥ i.

Dose.—One teaspoonful before each meal. After meals the fld. ext. cimicifuga, twenty to thirty-drop dose. If connected with anæmia or a low or debilitated condition, instead of the stillingia and iodide, we would give :

\mathcal{R} —Tr. Cinchona Comp	℥ viii.
Acid Phosphoric Dil	℥ ii.
Syrup Simplex.....	℥ vi.

Dose.—One teaspoonful before meals. After meals ten drops of tinct. nuxvomica, or fld. ext. xanthoxylum. Keep the bowels regulated and remove all exciting causes, building up the whole system, equalizing the circulation, aiding digestion and assimilation.

CATALEPSY.

This remarkable disease of the brain or nerve center, is characterized by a sudden deprivation of sense, of intelligence and voluntary motion. We find patients retain the same position during the whole paroxysm, as that they held when first attacked, or in which you place them, during the continuance of the fit. A single attack or seizure may last from a few minutes to several hours or days. These attacks are intermittent, without regard to periodicity.

Symptoms.—There may be some premonitory symptoms—headaches, mutability of temper, yawning, vertigo, palpitation, slight spasms, confusion of mind or sense; but usually the seizure is sudden, and without warning or preparation; the eyes are fixed, sometimes open, sometimes shut, pupils dilated. Restoration usually occurs just as suddenly, accompanied with sighing, pain and confusion of the head, with no recollection of what has occurred. No effort to restore consciousness is effectual. Nervous and hysterical women are more liable to its effects, but men are not exempt from them.

Causes.—*Predisposing*—anything that diminishes vital powers and increases the susceptibility of the nervous system, such as depressing passions, hereditary debility, intense mental labor, scrofulous taint, mercurial or venereal poisoning, hereditary or congenital.

The *exciting* causes are severe mental emotion, fright, long mental application, excesses in venery; and in females sometimes due to suppression of the menses, and inflammation of the uterus and ovaries.

Diagnosis.—Catalepsy differs from ecstasy, somnambulism or clairvoyance. Catalepsy is produced by a diseased condition, while the others are due to, and produced by, voluntary effort; absence of mind is a mild form of catalepsy. Mesmerism and spiritualism are also species of the same.

Prognosis.—Our prognosis of catalepsy is that that there is little danger in the largest proportion of cases—it may terminate in apoplexy, insanity, or softening of the brain. It is often connected with some organic affection of the brain.

Treatment.—All treatment, to be successful, must be directed to the removal of predisposing causes, and avoiding the exciting causes. We should give the alterative syrup—full dose—three times a day.

Give, also, in connection, tonics, hydrastis, cimicifuga or cinchona, half hour after meals, with fifteen drops of tinct. nux vomica at bed-time. I have found hot baths three times a week, with the following, act well:

R—Acid Phos. Dil.....	℥ ii.
Fld Ext. Cypripedium.....	℥ ii.
Syrup Simplex.....	℥ xii

Dose.—One teaspoonful before each meal. Give half an hour after meals, fld. ext. scutellaria, twenty drops.

CONVULSIONS.

This is a derangement of the nervous system. In some cases we can trace them to some cerebral disorder, and in others we have them developed without any apparent connection with any disease. We may divide convulsions into two classes :

1. Convulsions depending upon some lesion of the brain or its appendages.
2. Convulsions without primary lesion, or change of structure, originating in sympathetic or reflex irritation. The sudden, spasmodic, involuntary action of the muscles in this condition, depends upon some derangement or disease. In the epileptic form of convulsions, we have reflex irritation, or some defect it may be, at a remote part of the brain. Convulsion affects the whole muscular system, comes on in paroxysms, and attended with unconsciousness. In some cases the contractions are partial, of long duration, and the muscles assume a hard, compact feeling. This is termed tonic spasm. In other cases we have alternations of relaxation and contraction. These are termed atonic spasms.

Symptoms.—We shall, doubtless, be able to detect a long list of premonitory symptoms. Chief among these are ill-temper, sudden starting in sleep, restlessness, sudden screaming during sleep, rapid change of complexion. During dentition, we will have heat and redness of the gums, fever, vomiting, morbid appearance of the stool, acidity of the stomach, eyes roll upwards, twitching of muscles of the face, breathing hard and laborious, twitching of different parts of the body, clinching of the fingers and contraction of the feet, livid appearance around the mouth, dark ring around the eyes. All these symptoms, however, may be absent, and the convulsions come on of a sudden, or with just the twitching of one limb. During the attack there is a distortion of the features, pallor, or lividity of the face, starting or protuberance of the eye-balls, insensibility of the pupils to light, grinding and gnashing of the teeth, protrusion of the tongue, involuntary evacuation, labored breathing. The attack is usually followed by a tendency to sleep.

Causes.—There may be organic disease of the nervous system ; may have its origin in gout, rheumatism, syphilis, vaccination, a want of circulation of blood to the nerve centre, as in anæmia, or scrofula, but the greatest number of cases are due to reflex action, from the teething or swollen gums of children, derangement of the stomach and bowels, such as indigestion or acidity ; intestinal irritation, such as worms, hard, unripe fruit, disease of the kidneys, uræmia, or predominance of uric acid in the blood, pregnancy, liver derangement, absorption of bile, morbid state of the blood, as in small-pox, scarlatina, measles, mental emotions, violent whooping cough, miasmatic poisoning of the system.

Prognosis.—Favorable, unless connected with some severe, or organic disease of the brain, heart, etc. Persons subject to convulsions should be carefully watched, and every means adopted to prevent a return of the attack.

Treatment.—Our treatment, during the paroxysm, should be prompt and decisive, loose the dress, especially should every thing be loosened around the neck and chest.

Place the patient on the back with head well elevated, give plenty of fresh air. If you can get the patient to swallow, give one teaspoonful of tinct. lobelia with ten drops tr. capsicum. Repeat the lobelia alone every five minutes, until the muscular system is relaxed.

If he cannot swallow, give the lobelia as an injection—enough to produce relaxation—and we may safely keep the patient under its influence for several hours. Cold to the head when the face is livid and the head hot. Mustard water to the feet, or the following will be found excellent :

R—Aqua pura.....	O i.
Muriate of Ammonia.....	℥ i.
Nitrate of Potassia.....	℥ ss.
Aqua Camphor.....	℥ x.
Chloride Soda.....	℥ ss.

Saturate a cloth and keep the back part of the neck or head constantly wet with the same. Lobelia, cold, or ice to the spine, warm salt water, friction to the extremities, or the cautious administration of chloroform, if all other means fail to relax. If for teething and the gums are swollen and irritated, scarify the gums and regulate bowels, skin, etc. Give the syrup hypophosphite comp. in teaspoonful dose three times a day. Should we suspect worms give spirits turpentine, or pills of santonine. If due to striking in of measles, scarlet fever, etc., we must give comp. tinct. serpentaria to get up an action on the skin. Warmth, alkaline baths, are advisable. In a word the general treatment in the interval should be tonic and alterative, just such as the condition of the patient seems to demand.

In every case our efforts must be directed to the removal of the cause upon which the convulsions depend. All remedies that diminish the irritation, and thereby remove the cause of reflex action and irritation will do good. Purgatives are indicated in full habits, but are rather debilitating where there is a pale, unhealthy appearance of the skin. In these cases the hypophosphites are excellent.

MYELITIS.

Inflammation of spinal cord. This is excited by wounds, contusions, damp, cold, etc., and the tendency is to terminate in softening, which is more common than atrophy or degeneration.

Symptoms.—Constant and severe pain in the back, increased by motion, spasmodic contraction, or rigidity of muscles, followed by paralysis, fever, diminished secretions, etc. The pain is increased by heat or the application of hot clothes, etc. We may have connected with it, deep-seated headache, convulsive movement, inarticulation, lock-jaw, difficulty of swallowing and breathing. The action of the heart is irregular, paralysis in some form.

In *softening* there is numbness in the extremities, a sense of pain in the back, local tenderness on pressure, gradual loss of sensation in the limb. The recovery from spinal softening is rare and only effected by diligent treatment.

Diagnosis.—Death sometimes occurs from cessation of respiratory nerves. The inflammation, if limited to the portion near the head, will produce difficulty of swallowing and breathing, impossibility of raising the head, a sensation of pins and needles in the upper extremities. The symptoms vary according to the part involved. If the disease is seated in the middle of the spine, we have pain in that part affected, numbness in fingers and toes, convulsive twitching movement of trunk, paralysis of lower extremities, etc. If the lumbar region is affected we have paralysis of the limbs, retention of urine, involuntary stools, etc.

Treatment.—Counter-irritants along the spine, salt water bathing, and apply the irritating plaster, give an emetic of lobelia comp. and follow with an alcoholic vapor bath, then :

R—Podophyllin.....	grs. i.
Leptandrin	grs. ii
Sugar of milk	grs. x

Give the whole at night. Equalize the circulation by giving :

R—Fld. Ext. Serpentina	} 3 na.
“ “ Lobelia.....	
“ “ Asclepias.....	
	3 ss.

Dose.—Thirty drops in water after each meal. Follow with :

R—Comp sys Stillingia	3 viii.
Iodide potass	3 ss.

Dose.—One teaspoonful before each meal. The general treatment will be the hypophosphites, salt water bathing, friction, bracing tonics, good diet. These, if they do not cure, will retard the progress of the disease.

SPINAL IRRITATION.

An irritation of spinal cord reflected from some remote organ, characterized by pain in the spinal cord.

Symptoms.—Pain in the spinal column, extending to the head in some cases, the pain is always aggravated on pressure, a false step or sudden movement; sometimes amounts to numbness, spasm, or loss of muscular power. The irritation often extends to the whole body, involving both the nervous and muscular system. There is usually a feeling of constriction about the chest. I have met with cases of irritation of the dorsal or central portion of the spine, where the pain would be referred to the side just below the breast (mamma). We can sometimes detect a tenderness by pressure upon each process in rotation, but very often there is little external symptom of the true nature of the case.

Causes.—Spinal irritation is usually met with in women, as a result of some uterine derangements; inflammation of the uterus, profuse and exhausting secretions, excessive menstrual flow. In the male it may arise from rheumatism or gout, nervous exhaustion, etc. The *exciting* causes are mental worry, excessive venery, alcoholic liquors, cold, etc.

Prognosis.—The prospect of a cure depends upon the extent of the irritation,

and our ability to remove the cause. If the vital powers are not too low we can cure, and in every case palliate.

Treatment.—This will depend upon the cause. If due to uterine trouble that must be attended to; if rheumatism then the treatment directed under that head. For spinal trouble apply a capsicum plaster over the whole spinal column, and give internally :

R—Fld. Ext	Serpentaria.....	aa.
“ “	Asclepias Tub	3 ss.
“ “	Lactuca.....	3 i

Dose.—Thirty drops once in three hours. A lotion or liniment :

R—Tr.	Arnica.....	aa
“	Hyosciomus.....	3 i.
“	Aconite Fol.....	aa
“	Belladonna.....	3 ss.
	Chloroform	

Rub well in over the spine.

This is a poisonous compound, and, while valuable to relieve local pain, should be labeled so as to prevent a mistake in its use. It acts well in all neuralgic affections sparingly applied, but well rubbed in.

SPINAL CURVATURE.

This is met with in three forms :

1. Posterior curvature is a curve from within outward, producing an elevation of the spine—a true hunch-back variety.
2. Anterior curvature, from without inward, throwing the breast or chest forward and upward.
3. Lateral curvature, which is usually in the form, or rather assumes the shape of the letter S.

Symptoms.—The most observable symptom is a projection of one shoulder above the other, with a peculiar twisting gait when walking; sometimes complaints of pain or weakness in the opposite side, and there is generally a debilitated appearance. One shoulder and one side of the chest is always elevated over the other.

Causes.—Lateral curvature is often caused by position or occupation, the using of a hoe, or any thing that throws the weight habitually to one side. This, coupled with weak muscles and ligaments, will soon produce curvature. It is generally the result of a feeble vitality, scrofulous or tuberculous diathesis, coupled with want or privation.

Diagnosis.—Posterior curvature, the curve is usually about the middle or center of the spine; slight curvature may result from the habit of stooping, or leaning forward while reading, writing, etc.

Anterior curvature produces quite a singular appearance to the observer, and when occurring in the dorsal vertebræ, causes the chest to assume the appearance of a protuberance.

Lateral curvature will appear distinctly in holding a straight line at the upper cervical vertebræ and noticing the deviation from that to the lowermost part of the spine.

Prognosis.—Lateral curvature in children, is amenable to treatment, and except in cases of extreme debility our prognosis will be favorable. Posterior curvature is not so easily managed, but if all the circumstances are favorable it may be overcome—at least arrested. Anterior curvature is incurable and treatment amounts to nothing in this class of cases. Fortunately they are very rare.

Treatment.—The best plan of treatment is to apply Kolb braces, daily friction with warm salt water, or capsicum liniment. Constitutionally, the syrup hypophosphites comp. before meals with cinchona comp. after meals. Rest and the recumbent position is absolutely necessary to success. The treatment should be commenced on the first appearance of the disease, and the position of the patient when lying in bed should be looked to, having them on the back as far as practicable. Keep all the secretions in a healthy condition if possible. A general building up treatment is required in lateral curvature.

SPINAL MENINGITIS.

Acute inflammation of the membranes of the cord may terminate in *resolution*, or in effusion of *serum*, or in *suppuration*. The morbid action when acute may be associated with disease of the cerebellum or of the cerebral membranes; while chronic, it is mostly associated with caries of the vertebræ.

Symptoms.—Inflammation of the meninges of the cord, is attended with acute pain, often of a burning character, extending along the spine, stretching into the limbs, aggravated by motion or pressure, resembling rheumatism; rigidity or tetanic contractions of the muscles of the neck and back amounting to opisthotonos; paralysis of the lower extremities, which gradually extends upwards as the effused serum increases in quantity; a feeling of constriction in the neck back and abdomen; suffocating sensations; retention of urine; obstinate constipation. Males are more prone to the disease than females.

Causes.—Exposure to wet or cold, where the rheumatic diathesis remains latent in the system, mechanical injuries, etc.

Prognosis.—Unfavorable when we have a strumous diathesis.

Post mortem appearances are: great congestion, effusion of serum or pus, or perhaps softening of the cord.

Treatment.—We should use active counter-irritants over the spine. The irritating plaster with salt water bath and friction of the whole body.

R—Fld. Ext. <i>Serpentaria</i>	} aa.
“ “ <i>Asclepias</i>	
“ “ <i>Lobelia</i>	

Dose.—Thirty drops every three hours. If your patient is restless and pain great, give:

R—Fld. Ext. <i>Sumbul</i>	} aa.
“ “ <i>Lupulus</i>	

Dose.—Twenty drops every hour until rest is obtained. Build up the whole system. For this purpose the hypophosphites where there is debility; syrup stillingia comp. with iodide potass when we have rheumatic diathesis.

CONCUSSION OF THE SPINAL CORD.

The spinal cord is liable to concussion, and from its connection and intimate relation with all the other nerves of the body. we are liable to have a long train of evils follow. We may have it latent in the system for years before its symptoms are developed. I once had a case of paralysis, result of a fall three years previous. Slight concussion may be demonstrated by a pricking sensation, as of pins and needles in the hands, feet and limbs; stiffness, want of elasticity of step, extreme sensitiveness, etc.

Treatment.—Perfect rest in the recumbent position.

R—Fld. Ext. Lobelia.....	aa.
“ “ Asclepias.....	ss.
“ “ Xanthoxylum.....	ss.
“ “ Serpentaria.....	ss.

Dose.—Thirty to forty drops before each meal, and twenty drops of fld. ext. cimicifuga after meals. This, with rest and a nutritious, unstimulating diet will meet the indications in nearly every case.

FUNCTIONAL DISEASE OF THE NERVE.

Our great aim in treating disease should always be to assist the natural effort, or diminish the intensity and the natural reflex excitability of the centres.

Suppression of causes of peripheral irritation. Under this head we may class the local application of narcotics, the application of ice, and the thorough destruction of a wound of a poisonous nature by caustic potass or actual cautery. We may be justified in resorting to caustic in poisonous wounds, the removal of decayed teeth in neuralgia, removal of tumors pressing upon certain nerves, in fact, any thing which keeps up irritation or causes irritability, as in epilepsy, tetanus, hysteria, and hydrophobia.

Treatment.—Our best remedies to diminish action—lactuca, pulsatilla, scutillaria and cyripedium:

R—Fld. Ext. Lactuca.....	aa.
“ “ Pulsatilla.....	ss.
“ “ Scutillaria.....	ss.

Mix—Dose.—Thirty drops in one-fourth wine glass of water three times a day:

R—Fld. Ext. Cyripedium.....	aa.
“ “ Humulus.....	ss.
“ “ Sumbul.....	ss.
“ “ Lactuca.....	ss.
Holland Gin.....	xii.

Dose.—One teaspoonful in sweetened water, before each meal. At night give:

R—Fld. Ext. Guarana..... ʒ i.
 Aqua ʒ viii.

Dose.—One teaspoonful at bed-time. In hydrophobia and lockjaw, we would use electricity, applying the positive pole to the spine and negative over the pit of the stomach.

Sleep is an important consideration when the nerve centers are highly excited, and in these cases we shall find nothing better than the course indicated above.

CEREBRAL HEMORRHAGE.

Cerebral hemorrhage is indicated by paralysis on one side of the body, and especially on the side opposite that on which the effusion has taken place. The sense and intellect may not be effected; the patient may fall soon, but this is from the paralysis, and not from sudden loss of consciousness and sensibility as in apoplexy. There may be sudden loss of power without loss of consciousness. If the bleeding continues apoplexy may supervene and death result. Many cases recover under proper treatment.

Treatment.—Free use of purgatives, irritating plaster over the nape of the neck. Use counter-irritants; rollers spread with mustard, should be applied from the toes to the knees; give diaphoretics and diuretics, so as to get up free action on skin and kidneys. As soon as the hemorrhage has stopped, put your patient on the compound syrup of frostwort before meals, with iris versicolor after meals, say:

R—Comp. Syr. Frostwort O i.
 Iodide of Potass..... ʒ i.

Dose.—One teaspoonful before each meal:

R—Fld. Ext. Iris Versicolor..... } aa.
 Tr. Sanguinaria..... } ʒ ss.

Dose.—Twenty drops in one-fourth wine glass of sweetened water after meals.

CEPHALÆMATOMA.

This is a bloody tumor the result of pressure, appearing immediately. It is always found between the bones of the skull and pericranium. We have met with them from the size of an egg to that of an orange. It is usually formed on one or both sides of the head, and consists of a soft, circumscribed swelling fluctuating on pressure.

Treatment.—In most cases we need not interfere, as nature is equal to the emergency of correcting this trouble, and the tumor disappears by absorption. It may be aided and hastened by the following:

R—Muriate of Ammonia ʒ i.
 Bromide of Ammonia..... ʒ ss.
 Aqua O ss.

Dissolve, and keep a piece of lint saturated with this constantly applied.

COCCYODYNIA.

This is a pain, soreness or tenderness, just at the end of the spinal column (coccyx), the result of falls or blows, violent exercise on horseback, and tedious labor in women advanced in life. The inflammation sometimes extends to the muscular attachments of the coccyx, or point of the bone.

Symptoms.—In this affection the slightest movement which stretches the ligaments about the parts causes severe pain: as sitting, riding, walking, stool, sexual functions; even the menstrual flow aggravates it. It sometimes appears as a sympathetic affection, reflected from ovaries or uterus.

Treatment.—This must be directed to the removal of the cause. Should it be due to rheumatism, the treatment directed under that head; if due to nervous irritation, we shall find the comp. tincture cinchona and phosphoric acid advisable, with ten drops tincture nux vomica half hour after meals; when it proceeds from uterine irritation, give iodide potass, as follows:

R—Fld. Ext. Helonias	℥ ii.
Iodide Potass	℥ ss.
Comp. Syr. Frostwort	℥ i.

Dose.—One teaspoonful before each meal. Use a lotion of the following over the affected part, twice a day:

R—Tinct. Belladonna	} aa.
" Hyosclamus	
" Aconite Fol.	
" Arnica ..		℥ ii.

Shake well and apply with a flannel cloth, using considerable friction. The patient should be kept quiet in bed for a few days, regulating the bowels with some mild cathartic.

HYPOCHONDRIA.

This is a disease caused from reflex action. Functional derangement of the liver, bowels, stomach, or kidneys, operate painfully upon the nervous system, producing disorders of the intellect, inactivity and impaired condition of the mind.

We have languor, lassitude, want of resolution, and to sum it up, if you want a perfect specimen of misery and woe, you need ask for no other than a hypochondriac patient. They are expecting a terrible disease, death is at the door, all that makes life tolerable is soon to be taken away, and last, though not least, they are going crazy.

Treatment.—The most efficacious treatment, is to regulate the system—the secretions of the liver and kidneys. To this end we must inculcate exercise in the open air, attention to diet, bathing in salt-water. Tea, tobacco, liquors of an intoxicating nature should be dispensed with. We would give pills of podophyllin compound every night; say one at a dose, and would follow with

syr. hypophosphites, soda, lime and iron, one tablespoonful before each meal. After meals give :

\mathcal{R} —Tinct. Nux Vomica.....	} aa.
Fld. Ext. Xanthoxylum.....	
“ Dioscorea	
	3 ss.

Dose.—Twenty to thirty drops on retiring. Salt-water bathing, regular hours ; in a word, keep the mind employed and observe the hygienic laws most conducive to a good digestion.

HICCOUGH.

Spasmodic contortion of the diaphragm, due to indigestion, nervous disorder, exhaustion, etc. No matter from what cause, it is a symptom of irritation of the gastric nerve. Hiccough sometimes becomes quite troublesome, continuing for hours at a time.

Treatment.—If due to indigestion, the following will relieve :

\mathcal{R} —Bicarbonate of Soda.....	3 ss.
Aqua.....	O i.

Dose.—A wineglassful every fifteen minutes. When due to nervous derangement, give a tablespoonful of tincture of valerian. Peppermint will often relieve, and is especially adapted to infants. Usually any thing to suddenly excite the patient will relieve at once. I have succeeded in several cases after all other treatment had failed, with the following :

\mathcal{R} —Tr. Cinchona Comp.....	} aa.
Flud. Ext. Cypripedium	
Glycerine.....	
Acid Phos. Dil.....	
	3 ii.
	3 ss.

Dose.—One teaspoonful once in three hours till relieved.

HYDROPHOBIA.

Hydrophobia is a disease usually brought on by inoculation of the saliva of a rabid animal, appearing in from twenty to sixty days after the bite. In a few instances it has remained in the system for years, finally breaking out with full force under the influence of some depressing agency.

Symptoms.—When about to break out the bitten part assumes a livid appearance, is swollen and painful, pains darting from the wound with a burning sensation. Rigors, lassitude, depression, anxiety, watchfulness, giddiness, irritable temper, eyes red and brilliant, very sensitive to light, uneasy sensation in the stomach, constriction of the chest, difficulty of swallowing, oppression and shortness of breath ; spasm of the larynx, secretion of a viscid saliva ; the patient continually hawking and spitting, mouth and throat intensely dry, and unquenchable thirst, which he cannot allay on account of the spasmodic contraction of the throat, etc., when drink is offered. As the case progresses the respiration is more difficult, the voice changes, the pulse underanged, yet the

skin is hot and dry, spasmodic twitching of the body, pain that beggars description extends up the spine to the head ; the countenance becomes pale and haggard, and the eyes sunken, heart palpitates, muttering delirium, inclination to bite, greatest anxiety and uneasiness, sinking of the pulse, loss of voice, clammy sweat, convulsions and death. The poison when it comes in contact with the human tissues, has the effect to poison the nervous system, and the irritation speedily affects the whole muscular system. The heart, lungs and brain soon suffer and death is the result.

Diagnosis.—There is no mistaking hydrophobia for any other disease, the peculiar symptoms are so well marked that its nature is plainly manifest.

Treatment.—The safest and surest plan of treating a person bitten by a rabid animal, is immediate and total excision of the parts. Forcible suction is good ; also, ligature above and below the wound will aid in preventing absorption. Next to excision, complete cauterization is the best thing. Apply caustic potass. freely, follow with vinegar as a wash, and poultice with :

R—Pul. Lobelia	℥ i.
“ Elm	℥ i.
Sulphite Soda	℥ ii.

Make a poultice and apply warm. This will lessen the danger and may effectually prevent the disease. A strong tea of scutellaria, drank freely, and, in alternation, a teaspoonful of tincture lobelia.

Remedial agents are few, but the best and main dependence of the American practice is scutellaria, agrimonia, lobelia, valerian and sulphite of soda. The sulphite of soda locally and internally, has the effect to antidote the poison and prevent its absorption. A saturated solution should be constantly applied, or with lobelia in form of poultice, with the administration of ten to twenty grains internally three times a day. Allopathy and homeopathy alike offer no cure for hydrophobia. Hydropathy is a farce when it comes to this disease, as no patient can possibly stand water.

So, to the American practice, alone need we turn for hope in this terrible calamity. We must keep in mind we have a terrible poison to neutralize ; something that diffuses itself all through the nervous system, and remedies must be given to suspend the action of the poison. Lobelia is a partial antidote, in fact, by some is considered a specific. It should be given freely, and repeated, dose after dose, until the patient is unable to move a limb. This is a powerful but safe remedy, and in connection with the following, I may claim a real specific for this most terrible poison : Give a strong tea of scutellaria, or if you cannot get the herb, the fluid extract—half a teaspoonful in a cup of warm water every hour ; give, also, at same interval, sixty drops fluid extract agrimonia in water.

Electricity is good. Place the bedstead on glass, and apply the positive current to the spine and negative to the stomach. Let the patient inhale chloroform, not to the full effect, but partial. Give twenty drops of fld. ext. sumbul every half hour until the pupil contracts.

The great object in treatment after the symptoms begin to appear, is to suspend the nervous system till reflex action is prevented, and I am fully persuaded

that the above treatment will keep the patient from the violent symptoms, which, if they fail to appear before the ninth day, are easily controlled thereafter. Convalescence is to be established on tonics, phosphorus, etc.

ASPHYXIA.

The characteristics are a sudden and total suspension of all mental and corporeal functions.

Persons apparently drowned.—It is now a well established fact, that the principle of life may lie dormant in the body after it is apparently dead, and that it may be resuscitated and rescued from a premature grave by the means recommended by the various humane societies instituted in our country. As soon as the body of a person recently drowned is taken out of the water, it must be carefully conveyed with the head raised, to a house or other place where it can be laid dry and warm, avoiding the destructive method of hanging it by the heels, rolling it on a barrel, or laying it across a log on the belly.

The clothes must be immediately stripped off and the body wrapped up in blankets well warmed. It should be laid on its back with the head a little raised. If the weather be cold, it should be placed near a fire and a heated warming pan should be passed over the body; but in warm weather it will be sufficient to place it between two blankets well heated, or in the sunshine, taking care to prevent the room from being crowded with any persons who are not necessarily employed about the body. At the same time the whole body should be rubbed with the hand, or hot woolen cloths.

The rubbing should be moderate, but continued with industry, and particularly about the breast. The immediate application of frictions is of the utmost importance, as many have been recovered by friction only, when early used. When signs of returning life are apparent, the friction must be continued but more gently.

These methods must be continued three or four hours, as in several instances they have proved successful, although no signs of life appeared until that time. When the patient is able to swallow, he must take some wine, brandy, or rum and water. The process of reanimating a lifeless body is the most interesting that the physician meets with. Decision, promptitude and energy must attend every step, not so much for the purpose of doing a great deed, as for the purpose of doing what is necessary with dispatch and correctness.

NOXIOUS VAPORS.

Suffocation and immediate death may be occasioned by entering wells, cellars, caverns or mines, that have long been kept closely confined from the atmospheric air. The deleterious fumes arising from burning charcoal, or those from fermenting liquors, etc., may likewise produce the same fatal effects if imprudently received by any person into the lungs.

The external appearance of persons thus suffocated, is as follows: The head,

face, and neck are swollen; the eyes are propelled from their sockets, the tongue is protruded from one side of the mouth; the jaws are firmly closed; the face is of a livid, and the lips of a deep blue color; the abdomen is inflated; the body is insensible to pain, and the person appears to be in a profound sleep. Immediately on discovering a person apparently dead from such cause, the windows and doors ought to be thrown open, and the body be undressed and exposed freely to cool air, the face be sprinkled with vinegar, and cold water be thrown from buckets over the whole body for some time. If this method fail, friction and the other means recommended for the recovery of drowned persons should be put in practice.

FATAL EFFECTS OF LIGHTNING.

Persons injured by a flash of lightning, though apparently dead, may in many instances be restored by proper and timely applications. In general there are no external marks discoverable, though sometimes red streaks appear on different parts. The treatment to be pursued for the restoration of persons suffering injury from lightning, is precisely the same as that for persons suffocated by noxious vapors. The sprinkling with vinegar, and the affusion of cold water are the principal means to be employed. In some instances of suspended animation, electricity may be successfully directed.

OF FROST-BITTEN OR THE EFFECTS OF INTENSE COLD.

When persons are exposed to an intense degree of cold greater than the body is capable of sustaining, the vessels upon the surface, particularly the extremities, are constricted by which the circulation is obstructed, an unusual quantity of blood is forced towards the brain and a fatal apoplexy is generally the consequence. The first alarming symptom is a drowsiness, or almost irresistible propensity to sleep, and if this propensity be indulged, it will assuredly prove the sleep of death.

Whenever, therefore, a person is long exposed to cold, it should be recollected that his safety greatly depends on the constant motion and activity of the body and firm resolution to resist the propensity to drowsiness. If unfortunately a person has suffered by exposure to extreme cold, so that every symptom of life has disappeared, the only proper method of treatment consists in placing the naked body in a cold room, or in a situation distant from the fire, and immediately cover it, except the face, with a bed of snow, or plunge it into a bath of the coldest water for some time, and when taken out the whole body should be thoroughly rubbed with cloths wet with cold water. The immersion and the friction should be repeated and alternately applied for a length of time, for instances have occurred of persons being restored by a steady perseverance in the process, when no signs of life had been discovered for several hours.

When symptoms of animation appear, external warmth must be very gradually applied, and when the patient is able to swallow, a cup of tea or a little wine or brandy may be allowed. When the hands or feet have been exposed to severe cold and have become benumbed or frozen, the excitability of those parts will be so much stimulated that if they are brought near a fire, a violent inflammation, and probably a mortification will ensue.

External heat should, on no account be applied, but the frozen parts ought to be immediately covered with snow, or immersed in cold water, until they recover their natural warmth and sensibility, and if necessary, the applications and the friction should be repeated and continued for several days, and afterwards the external warmth must be applied in a gradual manner.

The application of goose grease, or the fat of the common fowl, has been successfully employed as a remedy to frozen limbs, even when the parts were perfectly black. The parts should be kept constantly covered with the grease. Tincture capsicum is excellent in frozen feet.

LETHARGY, OR COMA.

This is a species of apoplexy, which is manifested by an invincible drowsiness, or inclination to sleep, from which the patient is with difficulty awakened, and, if roused, he remains destitute both of sense and memory, and slumbers instantly again. The remedies applicable to this affection are the same as those advised in serious apoplexy, but especially counter-irritants, salt water baths, friction, etc., and cathartics frequently administered.

SYNCOPE.

This is a sudden swoon or fainting, in which the action of the heart is decreased, and sometimes a total suspension of the pulse and respiration takes place. It is generally preceded by anxiety about the præcordia, a sense of fullness ascending from the stomach towards the head, vertigo or confusion of ideas, dimness of sight, coldness of extremities, and paleness of countenance. In some instances the case is rendered more urgent by being attended with vomiting, convulsions, or an epileptic fit. When syncope occurs at the commencement of acute diseases it is generally considered unfavorable.

This unpleasant affection may be produced by an excess or a deficiency of blood, a loaded or disordered stomach, violent pains, sudden emotions of the mind, profuse evacuations, particularly of blood, aneurisms of the heart, and other organic affections.

During the fit the patient should be exposed to the open, cool air, and the neck and face sprinkled with cold water, and vinegar should be applied to the nostrils.

The patient should be placed in a recumbent posture, and the extremities well rubbed with hot flannels, and soon as the power of swallowing returns a glass of wine or brandy and water, or some volatile spirits should be given.

When persons are frequently affected with syncope, the peculiar cause should be ascertained, and the appropriate remedies applied.

APHASIA.

A loss of the cerebral faculty of speech, and the power of expressing thoughts by writing and gesticulation, is a discordance between the gray and white matter of the brain and spinal cord. At the same time we have loss of the memory of words, the memory of acts, and the memory of articulation. Aphasia is often transitory, as we have it, occasionally, during consciousness in

fevers, and it may be due partly to softening of the brain, hemorrhage of the cerebrum, apoplexy, etc.

Symptoms.—Sudden deprivation of the power of speech, face holds its expression of intelligence, movement of the lips and larynx healthy, a consciousness of what is wished to be expressed, with no power to express a word. Aphasia patients may have perfect knowledge. In cases of aphasia, that have come under my observation, I have found most of them recover almost as sudden as they were attacked,

Treatment.—Cases of loss of speech, not due to hemiplegia (paralysis) or chorea (St. Vitus dance) perfect recovery may be brought about by judicious means. We have, in all these cases, a jarring, or want of equilibrium, between the gray and white matter of the brain and medulla oblongata. The true theory is this: If the pupil be contracted, it denotes turgescence and congestion of the brain. In this class of cases nothing succeeds like small doses of lobelia, say fifteen drops of the tincture after each meal, with fifteen drops of fluid of extract xanthoxylum dissolved in sweetened water, half an hour before each meal.

This will sometimes have to be continued for months before a cure is effected.

There is usually a defective nutrition of brain and nerve tissues, hence the value of phosphorus, say twenty drops phos. acid dilute at night. When, however, there is dilation of the pupil then we give twenty drops of fluid extract of scutellaria, continue the phosphorus. The application of salt water baths to the spine and a wet towel to the nape of the neck will do good. At the same time the use of the syrup of hypophosphite comp. will have a happy effect in giving tone and strength to the system. If there is no organic difficulty, a cure will soon be effected. If due to lead or mercurial poisoning, then we must resort to powerful alteratives—something to antidote the poison and destroy it—using baths, etc. In aphasia from apoplexy the treatment must be directed to removal of the cause. These cases are the most hopeless, yet cures are sometimes effected, and much good may be accomplished, even though we fail to cure.

DISEASES OF THE EYE.

As a part of the diseases of the brain, spinal marrow, nerves and the sensitive system, we bring in diseases of the eye most frequently met with and amenable to treatment of the intelligent general practitioner. A volume as large as this could be filled with description, cause, treatment, etc., of disease of the eye alone. Those who desire to make further investigation are advised to procure the latest work on diseases of the eye, but for the diseases of this organ, generally, we find very little demand for operations, caustic, or other severe local treatment. It is well to remember that in disease of the eye we have one of the most important organs involved, and one of the most sensitive of the sensitive system, and that due caution should be exercised in the treatment of this class of disease.

CONJUNCTIVITIS.

This is an inflammation of the conjunctiva of the eye, or, in other words, the mucous membrane of the eye. Very common in a mild form, and is really the most common form of sore eyes. We have six varieties of inflammation of the eye: 1, Symptomatic; 2, simple; 3, eruptive; 4, catarrhal; 5, purulent; 6, gonorrheal, and that peculiar to new-born infants.

Inflammation of the eye may become chronic from neglect of acute cases.

Symptoms.—These are well-marked in all forms of the disease. The conjunctiva is injected with red blood, and there is effusion of serum into the avicula between the conjunctiva and sclerotica called chemosis. There is extreme sensitiveness to light, a feeling as of sand, or dust in the eye, heat, swelling, stiffness of the lids, pain in the globe and edge of the lids; the functions of the eye more or less perverted, intolerance of light becomes extreme, profuse, scalding tears, disordered vision, profuse secretions of the gland, severe pain on moving the lids, sense of distension and weight, rigidity of the organs, pain in the eye, temple and forehead. In cases long continued, the lids become thick, swollen and turned outward, attended with entire loss of vision. We have various forms of this disease as before remarked, but in treatment they may all be classed the same, varying your remedies to suit the severity of the symptoms. Granular conjunctivitis is similar to the above, and is caused by little granules or bumps forming on the inside of the eyelid.

Treatment.—In simple acute conjunctivitis, all that is required is to apply a poultice of slippery elm at night, or cloths saturated in cold water, locally a lotion made from the pith of sassafras will soothe and relieve inflammation, or:

R—Sulph. Morphia	grs. ii.
Zinc	grs. iii.
Aqua Camphor	℥ i.

Apply in the eye three or four times a day. When the disease has become chronic, we must resort to regular constitutional treatment. If the inflammation runs high and the patient is of full habit, give an emetic of lobelia comp., follow with a purgative and then put your patient on:

R—Syr. Stillingia Comp	℥ iv.
Iodide Ferri	℥ ii.

Dose.—One teaspoonful before each meal. After meals twenty drops comp. tinct. serpentaria, applying the lotion of zinc and camphor given above. For granulated lids, nothing but a regular constitutional course will suffice:

R—Comp. Syr. Frostwort	℥ i.
Iodide Potass	℥ i.

Dose.—One teaspoonful before each meal; at the same time give:

R—Fld. Ext. Corydalis	} aa.
" " Alnus Rub.	
	ss.

Dose.—Twenty drops in water after each meal.

PURULENT OPHTHALMIA.

This is the worst of all forms of conjunctivitis. It is attended with all the symptoms of the simple varieties, with a profuse, purulent discharge, which is highly contagious, producing a like inflammation in others if it comes in contact. This purulent discharge appears within twenty-four to forty-eight hours after contact, and runs its course rapidly. To this class belong the purulent ophthalmia of infants, and adults' gonorrhœal ophthalmia. Purulent ophthalmia in the infant is caused by contact of leucorrhœal discharge of the mother, or when the mother has gonorrhœa at time of birth; neglect of cleanliness, or to remove the cheese-like secretion from the eyes of infants; cold, damp, strong light, defective nutrition. Purulent ophthalmia in the adult is due to contagion, is produced from contact, from impure air, cold, damp atmosphere, and general derangement of the nervous system, neglect of cleanliness. In damp seasons of the year, when we have a bright sun and rains alternately, we may have purulent ophthalmia.

Treatment.—In the treatment of purulent ophthalmia, we should have an eye to cleanliness, keep the discharges well removed, and keep the eye saturated with a weak solution of sulphite of soda, say three grains to the ounce of water, and applied with a cloth; locally the camphor zinc lotion, and at night keep a cloth saturated with sulphite of soda and lobelia, over the eye:

R—Sulph. Soda.....	} aa.
Tr Lobelia.....	
Aqua	
	} 5il.

Put the patient upon a thorough alterative course with diaphoretics, and lactuca or humulus to quiet the nerves and secure rest. Care should be observed to keep the eyes well cleansed or it may lead to ulceration and destroy the eye.

GONORRHEAL OPHTHALMIA.

This is produced from direct inoculation with the gonorrhœal virus.

Symptoms.—These are, a most severe, darting pain, and the inflammation runs high from the beginning. It is very dangerous, apt to result in ulceration or abscess, and destroys the sight and eyeball at once.

Treatment.—This should be active constitutional and local, and the eye kept well cleansed and bathed with the sulphite of soda solution. Give patient active diaphoretics and diuretics. The following will act well:

R—Fld. Ext. Eupatorium Purp.....	} aa.
“ “ Asclepias Tub	
	} 3 ss.

Dose.—Thirty drops once in three hours.

R—Sulph. of Quinine.....	} aa.
Prussiate of Ferri.....	
	} 5 xx.

FOREIGN BODIES IN THE EYE.

Foreign bodies may be mentioned as among the causes of inflammation of the conjunctiva, and in all cases they should be carefully searched for and removed, since so long as they continue in the eye will the inflammation be kept up. Not unfrequently will the disease continue for months, resisting every remedy, when a careful examination has detected some foreign body, which being removed, the complaint has been promptly relieved. As some difficulty is often experienced in removing these bodies, the following observations on the subject may be interesting in this place: Foreign bodies entangled in the eye, occasion great pain, inflammation, and in inability to move the lids. They excite an additional secretion of tears, the flow of which frequently removes them. If this fails, the lids should be held open by the fingers, the patient desired to look towards the side opposite to that wherein the extraneous body lies, and the foreign substance may be readily removed with a probe or a small roll of fine linen. If one of the ciliæ fall into the eye, it may be removed in the above manner. Small round bodies, such as beads, usually lie beneath the upper eyelid, and are got out by laying hold of that eyelid by its ciliæ and margin, drawing it outwards and then making the patient look down, or while the eyelid is held thus, a small curette is to be introduced under its temporal angle, and carried gently on toward the nose. If the bodies be very small, or consist of dirt or sand, they should be washed out by introducing the pipe of a small syringe beneath the eyelid at its outer angle, and then directing the stream of fluid, which should be tepid water, or milk and water, over the eye, towards the nose. Extraneous particles are sometimes insinuated under the upper lid, and adhere to it. In these cases, it is necessary to turn the inside of the lid outward, and this may be done without difficulty by the following means: The eyelashes should be taken hold of with the forefinger and thumb of the left hand, a slight pressure being at the same time made on the outside of the lid a little above the upper margin of the tarsi with the end of a probe (or some similar instrument) held in the right hand. The part being thus kept down by the instrument, the lid may be gently raised and then turned. In this everted position of the lid, the foreign particle is immediately brought into sight, and as before directed, may be removed with a probe or roll of fine linen, etc. When the particle is within the lower lid, this may be readily drawn down so as to bring the foreign substance into view and it may be removed as above directed.

Small bodies, such as particles of metal, the hard wings of insects, etc., are sometimes indented in the conjunctiva: a piece of fine silver wire, beat thin and fixed in a handle, will be found very convenient to remove them with. When splinters of metal get beneath the conjunctiva they should be seized with a pair of forceps and cut out with a pair of fine scissors.

Workmen in filing or turning of iron, are liable to have particles from it fly into their eyes. These particles are often imbedded in the cornea. They should be removed with the point of a needle, or a common thumb lancet, which is to be introduced close to the body and the point then pressed outwards. If these

substances are allowed to remain suppuration will take place, and they will thus be separated and will drop out.

But we should not trust to the operation of nature in these cases, for the continuance of these foreign substances in the eye will generally produce violent inflammation and add greatly to the patient's suffering. Particles of cantharides, pieces of mortar, and unslacked lime should be removed by means of a camel's hair pencil dipped in oil or glycerine.

SCLEROTITIS, OR INFLAMMATION OF SCLEROTICA.

Inflammation of the sclerotica may be said to be excited by various mechanical and chemical stimuli—such as blows, punctures, the lodgment of extraneous irritants on the surface or imbedded in the conjunctiva, and more especially when applied to the cornea; acrid fumes, excessive application of the eye, or its exposure to great heat or reflected light, the irritation from a granular state of the palpebral conjunctiva, etc.

Symptoms.—Inflammation of the sclerotica is very variable in its mode of attack, and irregular in its progress. Sometimes it comes on suddenly, is of a very violent character, and attains its height in a short time; at others, it is of a more insidious nature, slow in its progress, involving the internal tissues in its disease and producing considerable mischief, while the practitioner is thrown off his guard by its indolent and shifting character.

When it assumes an acute form, it usually attacks suddenly and commences with pain and redness of the eye, accompanied with some degree of pyrexia. The pain, as regards its violence, is exceedingly variable; sometimes it is excruciating. We have been told by patients "if you do not afford us speedy relief, we shall go crazy;" at others it is moderate; occasionally it intermits, but generally it is unceasing, though undergoing exacerbations, which are usually most severe at night. The pain is generally seated in the eyeball, but extends itself also to the temple, the brow, the cheek bone, the teeth, or even the whole head; sometimes it is confined to one side of the head, occasionally there is severe pain in the ear or cavity of the nose; and it is often accompanied with rheumatic pains in other parts of the body.

The sclerotica is more or less reddened, occasioned by the ramifications of minute vessels, which present a peculiar carmine or rose-red color. They are equally numerous on its posterior and anterior portion, and run in nearly straight lines to the very verge of the cornea. There is generally very profuse lachrymation, though occasionally, especially at the commencement of the disease, the secretion of tears is suppressed. The pupil is often contracted, but preserves its circular form and thin flowing edge; its color, especially that of its inner circle, is in this case rather lighter than natural; this affection of the iris we believe to be entirely sympathetic. There is often intolerance of light, but this symptom does not always occur, as is supposed by many writers. The tongue is frequently furred, and the gastric and biliary organs deranged.

Diagnosis.—Inflammation of the sclerotica may be distinguished from iritis by

the following marks: The blood vessels are equally numerous over the whole sclerotica, while in iritis they are most numerous on its anterior part where they anastomose very frequently, and form a peculiar red zone. In the former disease they advance to the very verge of the cornea, while in the latter they terminate abruptly about a line behind it, leaving a distinct pale circle, which is not seen in the former disease, or but rarely, and then it is not very evident. In the former, too, the redness will, on close examination, be found to be produced more by minute ramifications than by large trunks, as is the case in the latter. The iris, though contracted in the former disease, does not lose its circular form or its thin flowing edge, and become puckered and thickened as in the latter, nor does it exhibit any other change in its appearance, except becoming a little paler. When examined, the eye will be found more steady in the former, and will not roll incessantly as in the latter affection. Scleritis may be distinguished from conjunctivitis by the absence of puriform discharge, and by the eyelids not being affected; by the vessels being of a rose-red or carmine color, running in nearly straight lines, and being deep-seated; while in the latter disease they are darker, very tortuous and superficial.

Treatment.—Give an emetic of lobelia comp. and follow with a purgative of podophyllin and leptandrin, then put your patient upon active diaphoretics, asclepias and serpentaria, in suitable dose every two hours, alternating with cypripedium, and lactuca to relieve pain locally, warm fomentations of hops, or poppy heads constantly applied, or if we can not obtain them, then a teaspoonful of fluid ext. papaver to a half pint of boiling water. Clothes wet with this and changed frequently will give prompt relief.

No irritating lotion or caustic should be used. After the acute symptoms are controlled, put your patient on a thorough alterative course, the syr. stillingia comp. with iodide potass. three times a day, diuretics, tonics and a good, nutritious but unstimulating diet.

Treated in this way a favorable termination may be looked for. You will find in all inflammations of the eye a tendency to relapse, and you must direct the patient to avoid sudden changes of temperature, too much light, or alcoholic stimulants, for some time after the disease has subsided.

INFLAMMATION OF THE CORNEA.

Although the vessels of the cornea are not visible in the normal and perfectly transparent state of the texture, they become enlarged under inflammatory excitement, whether acute or chronic, and admit red blood, and they are sufficiently numerous to allow of the part becoming generally red under active or long-continued congestion. The various results of disturbed vascular action, such as union by adhesion, interstitial deposition, softening, thickening, induration, ulceration, cicatrization, suppuration, mortification, occur in the cornea as rapidly and perfectly as in structures of which the vessels are larger and apparently more numerous.

Symptoms.—In the more acute cases, the conjunctival vessels are distended,

not, however, so as to conceal the changes which have occurred in the more deep-seated plexus, and the sclerotica generally has a rose or pink tint. A slight cloudiness of cornea may be produced and continue without visible increase of vascularity. Considerable pain and sense of tightness in the eye, and pain in the brow or forehead, often accompany the affection, especially in its early stage, in which we find white tongue, headache and general feverishness. There is increased sensibility to light, which is the more remarkable, as the changes in the cornea must diminish the quantity admitted into the eye; it must be remembered that the sclerotica is involved in the inflammation, and that intolerance of light usually occurs when that membrane suffers.

These symptoms are attended with lachrymation, especially on exposure to light. The inflammation may proceed with some rapidity and be attended with some feverishness. On the other hand, it is often of long duration, continuing for many months, and it does not proceed to suppuration. Often, after going through an acute stage, with pain and feverishness, it assumes a more indolent character, and is protracted indefinitely; the disease lasts, but the patient does not suffer.

Causes.—Corneitis may be brought on by external agencies, by cold, damp, or atmospherical vicissitudes. More commonly it owes its origin to internal causes, seeming to come on spontaneously. It is most frequent in the young, and seldom seen after the middle period of life.

It occurs in those of unhealthy constitutions, especially the strumous, or where the general powers have been considerably reduced.

The iris is generally involved, to a greater or less degree, in corneitis; it may suffer considerably if the inflammation be active, and allowed to proceed unchecked.

Hence arise contraction of the pupil, effusion of lymph, and consequent permanent adhesion of its margin to the crystalline capsule, and discoloration of the iris.

Prognosis.—Under proper treatment, the interstitial effusion of the cornea is removed, the membrane regains its transparency, and vision is completely restored. The iris, however, exhibits after such recovery, a darker tint, with a little loss of brilliance, and thus the eye has a somewhat dull appearance.

Under less favorable circumstances the cornea loses its transparency, and becomes changed in various degrees from leucoma to slight nebula. The iris is dull and dark colored, the pupil adherent, and there may be opacity in the opening.

Treatment.—When fully satisfied we have inflammation of the cornea we should give an emetic of the comp. powder of lobelia, follow with a purgative of epsom salts, or seidlitz powders. Then put your patient on a regular alterative treatment.

We shall find the syr. stillingia comp. or frostwort with iodide of potass. before meals, and asclepias and serpentaria one hour after meals act well. Under this treatment the inflammation will gradually subside, and the cornea assume its natural appearance, and no local treatment of a stimulating or astringent nature should be used. Keep the bowels regulated and direct a

generous, unstimulating diet. As the disease is formed and proceeds slowly the influence of treatment is gradual, and steady perseverance is necessary to insure success.

When the treatment takes effect, and especially when the alterative acts decidedly, the vessels of the cornea contract, and the newly-deposited matter is absorbed, the cornea regaining its transparency even where it had become generally and rather densely opaque. It clears first in the circumference, the favorable change gradually advancing towards the centre.

When the constitution is naturally delicate, as it commonly is in those affected with corneitis, or where its powers have been reduced by disease and treatment, all depressing influences must be avoided as much as possible.

PARTIAL INFLAMMATION OF THE CORNEA.

Most frequently affects the entire cornea, especially in young persons. Sometimes, however, about or after the time of puberty, the affection commences in one spot, other points become affected in succession, and thus disease may gradually extend over the whole. Pain has been felt in the eye, partial dullness is found at one point near the edge of the cornea; a little redness is seen on the external surface of the eye, corresponding to the *nebulæ*. On close inspection, this redness proves to be seated in the *sclerotica*, and the *conjunctiva* is unaltered; enlarged vessels are seen on the *sclerotica*, and we find minute ramifications extending from them on the cornea. Another patch of *nebulæ* occurs, and ultimately the whole cornea, or the greater part of it, is affected. Local applications are not of much advantage. In the inflammatory period and when intolerance exists, fomentations are most comfortable to the patient.

Stimuli and astringents are hurtful so long as active inflammation exists. When that is removed and the disease is beginning to yield, the *papaver* lotion may be tried.

STRUMOUS INFLAMMATION OF THE CORNEA.

Inflammation of the cornea frequently occurs in scrofulous persons. Its local character and its real nature do not differ essentially from the description already given; it can not therefore be regarded as a peculiar or distinct affection. The entire cornea becomes dull and hazy, and then exhibits a more or less deep nebulous opacity, the surface having the sanded appearance already described. The conjunctival vessels are not much distended; but there is a deep-seated, pink redness, from fulness of the trunks on the *sclerotica*, the minute straight branches of which form a zone round the cornea; when the affection is very active minute twigs of the conjunctival vessels join the zone, which has a bright redness round the cornea. A dull, reddish-brown discoloration is seen in the cornea at its circumference, generally partial. This depends on an aggregation of minute vessels filled with blood, and ramifications are

easily distinguished proceeding from the red zone to such discolorations. Lachrymation and intolerance of light are common to this affection with ordinary strumous ophthalmia, and it is not usually attended with pain in the eye or head. The constitution suffers; the pulse being quick, the skin hot and dry, the tongue white, the appetite deficient and the bowels costive. The opacity of the cornea varies in degree. The pupil can be seen through it more or less clearly in some cases; in others the iris and pupil are entirely concealed. Like other strumous affections this is obstinate and liable to relapse.

The iris probably suffers with the cornea, though its condition is concealed by the changes going on in the latter membrane.

Formidable as this affection appears, when fully developed it yields to Reform treatment and the normal condition of the inflamed textures is restored. It may, however, terminate in leucoma, contracted and adherent pupil, which may be closed more or less completely by an opaque, adventitious membrane, disorganization of the iris, and diminution or loss of sight. Under long continuance of the affection, which must be attended with increased secretion of the aqueous humor, the anterior chamber is enlarged, and the cornea may even be altered in figure.

Treatment.—The treatment should be, first, an emetic, then a mild saline purgative, then administer the hypophosphite comp. before each meal. After meals :

R—Tr. Sanguinaria.....	}	aa.
Fld. Ext. Iris Versicolor.....		
“ “ Populus		
“ “ Asclepias.....		3 ss.

Dose.—Twenty drops in sugar and water. The moistened extract of belladonna may be smeared on the brow to prevent contraction of the pupil and lessen irritability of the eye. Tepid fomentations are the most agreeable local applications; a little fluid ext. papaver may be added to the liquid. Mild counter-irritation may be employed, if the disease does not yield to the means already specified. Under such circumstances a local stimulus may be tried, such as the vinum opii, or a two grain solution of the sulphate zinc and morphia.

ULCERATION OF THE CORNEA.

Ulcers of the cornea occur frequently in inflammation of the external tunics; in the purulent and strumous ophthalmia. Ulcers of the cornea may be small or large, superficial and confined to the conjunctival layer, deeper and affecting the corneal texture, or even penetrating the anterior chamber, inflamed and spreading, stationary or healing. In the superficial ulcer there is a mere removal of the thin conjunctival layer, deeper and affecting the corneal texture, or even penetrating the anterior chamber.

In the superficial ulcer there is a mere removal of the thin conjunctival layer, producing an appearance like that of excoriation in the integument. When the loss of substance extends more deeply, the excavation is more or less funnel shaped. The figure of the ulcer may be regular or irregular; its surface

and edge smooth or unequal. The ulcerative process in the cornea, as in other textures, is an effect of inflammation, at least in the great majority of instances, to represent the latter, as produced by the irritation of the former, would be to invert the order of occurrences. The ulcer, however, being attended with inequality of surface, may be a source of irritation to the eye, in the movement of the globe and lids. We employ the same treatment that we should for an inflammation not attended with ulcer, and if we succeed in arresting the inflammatory disturbance, the ulcer will soon heal.

No particular local treatment is required for this symptom. When the ulcer is healing we shall find it the best course to leave the case to its natural process, employing merely tepid ablution. The notion that ulcers of the cornea require the use of lunar caustic has prevailed generally, and led to injurious practice. In the inflamed and spreading state of the sore, such treatment would be most mischievous; when the process of repair is going on properly it is, at least, unnecessary to resort to any local treatment.

In obstinate cases of chronic ulceration, which, with little inflammation, will sometimes creep slowly over the cornea, healing on one side, while it advances on the other, I have found great benefit from counter-irritation in the temple.

OPACITIES OF THE CORNEA.

These are generally the result of disease being produced by inflammation. New matter is deposited during inflammation and becomes organized, thus causing the opaque change. Therefore, when we see opacity we infer that inflammation has preceded; and, generally speaking, the intensity of the opacity is in proportion to the violence of the preceding inflammation, as is exemplified in purulent ophthalmia, and in the acute corneitis, proceeding to suppuration. This, however, is not necessarily the case, as certain inflammations of the cornea are characterized rather by the deposition of the new matter, than by the vascular congestion; so that considerable general opacity may be produced without much external redness of the eye and a nebulous state of the membrane is sometimes seen without any other evidence of increased vascular activity.

The term opacity is a general one, including all the changes which affect the transparency of the cornea, from a barely perceptible film, to whiteness like that of marble or chalk. Opacity in its slighter form is called *nebula*, haziness or dullness, there is a milky, cloudy, or smoky appearance of the part; a state in which the transmission of light is only partially impeded. The more dense opacities extending through the laminae, are called *leucoma* or *albugo*. The term *macula* is applied to small patches, or specks. The popular word for opacity is film. The color of the opaque part is different in different instances; generally speaking, it is bluish-white like milk, or gray, it may be pearly or silvery, even marble; there is sometimes a yellowish, and occasionally a reddish tint.

Permanent enlargement of vessels is sometimes conjoined with opacity of the

cornea, and we see one or more trunks containing red blood ramifying on the part.

The effect of the morbid condition on vision will vary according to the density and position of the opacity. The slightest film or cloud opposite the pupil will interfere with vision materially, while the most dense leucoma near the circumference does not injure the sight. Dimness is sometimes caused by a central cloudiness, so faint that it can only be detected by close inspection of the organ in various positions.

Treatment.—Our first object is to arrest inflammation, where that is still present. If we do this, and wait a little, the opacity will diminish of itself, the newly deposited matter, which has caused the opaque change, being absorbed, as inflammatory interstitial effusion is removed in other textures. In children the process of nutrition and absorption are vigorous; there is an active removal and deposition of materials, and the changes which the cornea undergoes are very striking; although the membrane should be so opaque in a child as to render the iris invisible, it will completely recover its transparency. After reducing the inflammation, and removing all irritation, after waiting to see what can be done by the natural process of absorption, we may adopt further measures for lessening the opacity. The effect of counter-irritation with attention to diet, and to the state of the stomach and bowels, will often be very considerable. The absorption of the newly deposited matter may be assisted, after these means have been put in force, by the employment of stimulants or astringents; the best of which is a solution of the sulphate of zinc and morphia. This may be either dropped into the eye, or applied to the opaque part by means of a camel's hair pencil. If this does not act well, try:

R—Fld. Ext. Myrica.....	℥ i.
Tr. Sanguinaria.....	gtts. x
Aqua Camphor.....	℥ iv.

Apply with camel's hair pencil three times a day, and in addition, a general alterative and tonic treatment.

IRITIS.

Inflammation of the iris. This is the part we might term the middle portion of the structure of the eye as it lies between the cornea and crystalline lens. It divides the eye into what we term the anterior and posterior chambers, cavity containing the aqueous humor of the eye, these cavities are lined by a membrane similar to that covering the heart and bowels (pleura peritoneum). Inflammation there is of an adhesive kind, and is usually the most formidable of all the inflammations of the eye. The effusion of lymph may stop the movement of the iris, change the form of the eye to all appearances, and may even close it up altogether.

Symptoms.—The eye is red, vision dimmed, the light intolerable, pain in the eye and nerves around the eye. We may have deep-seated, tearing, lancinating pains in the eye and extending to the top of the head, spasmodic movement of

the globes of the eye, severe pain on moving the eye, specks or black spots floating before the eye, effusion of blood and matter into the anterior chamber of the eye, irritability of the whole system, gastric, febrile and other symptoms making their appearance. Gray or blue eyes change to a yellow tint, while black assume a red appearance; there is throbbing pain in the eye, mental depression, etc.

Causes.—The causes of this disease are various. It may come from sudden exposure of the eye to intense, glaring light, from surgical operations on the eye, often met with among engravers, watch makers, needle women, etc. May sometimes result from mechanical injuries, constitutional taints, rheumatism, scrofula, mercury, syphilis, etc. It causes more constitutional disturbance than any other inflammatory disease of the eye.

Treatment.—The treatment of iritis varies according to the cause. Our efforts should be to subdue inflammation, arrest effusion and create absorption of lymph, preserve the pupil and allay the pain. Our treatment must be active, as the tendency of the disease is to run its course rapidly. To meet the indications of the case, give :

R—Podophyllin	} aa.
Leptandrin .....		grs. iv.

Mix and make four powders. Give one in a teaspoonful of cream of tartar every night. Give every three hours :

R—Fld. Ext. Serpentina	} aa.	
“ “ Aletris Far		} ʒ ss.
“ “ Asclepias Tub.		

Dose.—Thirty drops in water. Continue till the pulse is reduced. Counter-irritants to the neck may do good, use equal parts oil capsicum and croton, apply to the nape of the neck, give three times a day the comp. syrup of yellow dock, with the iodide potass.

Apply around the eye fluid ext. belladonna, so as to keep the pupils well distended. After the acute symptoms have passed, we would get up a healthy tone to the system by giving cinchona, or the hypophosphites as a tonic. Daily bathing will be found excellent. A light, nutritious diet, avoid all alcoholic stimulants, or any thing that tends to excite the circulation unduly.

The alterative treatment should be persevered with until all traces of inflammation have passed.

AMAUROSIS.

The imperfection or loss of sight which results from affection of the nervous apparatus belonging to the eye, whether that affection be seated in the retina, the optic nerve, or the sensorium, whether it be idiopathic or primary, sympathetic or secondary, whether it consist in vascular congestion, inflammation, or organic change, or simply in functional disturbance, is called *amaurosis*.

This word means dim or darkened sight; it is a general term embracing affections of the nervous visual apparatus in all their forms or degrees.

The expression, *Gutta Serena*, employed by the writers of the Middle Ages, is often used as synonymous with amaurosis; it is more properly applied to that full development of the nervous affection in which complete blindness has been produced; the patient can no longer discern objects, however large; he can perhaps distinguish light from darkness, or he may be unable to make that distinction. This term seems to have been derived from the pathological notions formerly prevalent respecting the cause of blindness.

It was supposed to result from the effusion of a humor or fluid, at or behind the pupil, as the latter retained its natural blackness in amaurosis, the effused drop was said to be clear.

Symptoms.—The leading symptoms of amaurosis consist in the variously altered state of the function. We find sight impaired in all possible ways. The most various imaginary objects and colors appear before the eyes. In different instances there are all kinds and degrees of defective perception in respect to the form color, and proportion of objects, and their relations to each other, augmented and diminished sensibility to light, impediments to vision most diversified in degree and kind. In the beginning of the affection patients complain of the sight being weak or dim; the imaginary objects called *muscæ* are seen; objects are perceived but imperfectly; they appear more or less obscured by cloud or haziness; the letters of a book run into each other and become confused; the eye is soon tired, and waters or becomes bloodshot if exertion is continued. Sometimes near objects are not clearly recognized, when those more distant are seen perfectly. This incipient stage, in which vision is partially impaired, is *amblyopia*, or weakness of sight; it is sometimes seen as a permanent condition.

They who divide amaurosis into two kinds, that with increased and that with diminished sensibility of the retina, enumerate, as symptoms of the former, various kinds of impaired vision, some of which rather denote the period of excitement in disease of the retina, than the more advanced stage, ordinarily designated as amaurosis. Some of the symptoms now alluded to are merely the offspring of sympathetic disturbance caused by primary disorder in other quarters.

Causes.—The causes which contribute more directly to the occurrence of amaurosis, are analogous in their nature and operation to those which produce disease in other textures of the eye and in other parts of the body. Excitement of the circulation by errors in diet, particularly by intemperance in drinking, and the determination of blood to the head more immediately produced by such indulgences, are circumstances of frequent and powerful operation in causing disorder and disease of the retina, as well as other parts of the eye, and of the brain. A sedentary mode of life, and residence in bad air, seriously aggravate the injurious effects of these disturbances. The continuance of such habits through a course of years impairs the functions of the assimilative organs and nervous system, and thus induces an unhealthy state of constitution, in which amaurosis occurs more frequently than in the direct plethora caused by excess in an individual whose general powers are unbroken. It should be mentioned here that anæmia is almost as frequent a cause of amau-

rosis as plethora. We have seen this affection result from the anæmia produced by profuse flooding after delivery or miscarriage ; by too frequent child-bearing, protracted lactation, debilitating occupations, innutritious diet, defective hæm- atosis, granular degeneration of the kidney, etc.

In a great number of instances the immediate or exciting cause is exces- sive exertion of the organ, particularly its employment on minute or shining objects.

Limited or temporary exposure to strong light may produce amaurosis suddenly, as in a stroke of lightning.

Diagnosis.—The distinction between amaurosis and cataract will be more fully considered in my description of cataract.

It may be mentioned here that the most certain means of distinguishing amaurosis from cataract is afforded by a catoptric examination. In perfectly uncomplicated amaurosis, the three images of a candle can always be seen, whilst in cataract the second upright, and the inverted images are one or both absent, or changed in size, brilliancy, or distinctness, as will be pointed out in the chapter on this disease.

Prognosis.—Our prognosis of amaurosis is favorable when not due to local injury, congestion, or mechanical obstruction. In cases arising from cyst, tumors, etc., the amaurosis may disappear when cause is removed.

Treatment.—This should be both local and constitutional. The first is to be done by applying irritating plasters behind the ears or at the back of the neck, and continuing them for a considerable length of time, by promoting a dis- charge from the nose by means of :

R—Pulv. Sanguinaria.....	} aa.
Pulv. Myrica.....	
	} ʒi.

Mix.—Snuff up the nostrils several times a day. Electricity has been em- ployed in some cases with the happiest effects, when other remedies have failed, by passing very slight shocks through the forehead twice a day, and afterward drawing sparks from the parts surrounding the eye or eyes, which plan ought to be persevered in for a proper length of time.

Stimulants have been applied immediately to the eyes in some cases of amaurosis with a good effect, but more particularly in those which seem to depend upon an irritability of the optic nerve.

In such cases an infusion of dried capsicum in water, in the proportion of one grain to the ounce, may be made use of, dropping a few drops into the eyes morning and evening. The severity of the pain may be great at first from this application, but by perseverance it will be found to abate. The vapor arising from warm, rectified spirits passed through a tube and received into the eyes, has sometimes produced a good effect.

Constitutional treatment will depend upon the cause. Amaurosis is, after all that may be written or said of it, a species of paralysis, and may be due to op- posite causes, either too great fullness of blood to the brain and spinal cord, or lack of blood to the same. When due to the first—plethora—then we should put the patient upon:

R—Syr. Stillingia Comp..... O i.
Iodide Potass..... 3 i.

Dose.—One teaspoonful three times a day, at same time :

R—Fld. Ext. Serpentina..... } aa.
" " Asclepias..... }
" " Scutellaria..... } 3 ii.

Dose.—Thirty drops three times a day, with the irritating plaster at back of neck, warm foot baths, cold applications to the eyes. When we have a condition of anæmia, lack of blood to brain and spinal marrow, then our treatment should be directed to correcting that trouble:

R—Syr. Hypophosphite Comp..... O i.
Tr. Nux Vomica..... 3 ss

Mix.—Shake well and give a teaspoonful three times a day, at night twenty drops fluid ext. scutellaria to procure sleep. Keep the bowels well regulated, as in either form of amaurosis constipation aggravates all the trouble; strict attention to hygiene, and a good, nutritious diet. Avoid alcoholic stimulants, the clothing should be warm and sufficient to protect from changes of the weather, etc. Under this treatment amaurosis, if not due to some local irritation, will soon disappear. When it occurs in nursing women they should be directed to wean the child, and the general course pursued as in other anæmic condition of the blood. Amaurosis from nervous or sexual debility usually disappears when the cause is removed.

CATARACT.

This term should be limited to opacity of the crystalline lens or its capsule, whereby the rays of light are, in a proportionate degree, intercepted on the way to the retina, and vision is thus impaired or reduced to a mere perception of light and shade.

Before examining any patient with suspected cataract, the pupil should be dilated with atropia, and then, if there be cataract, there will be seen an opaque body of a gray, bluish-white or amber color behind the pupil; objects appear as if surrounded with a mist or as if a cloud was interposed between them and the eye; and that sight is better in the evening, or when the back is turned to the light, or after the application of atropia—obviously because the pupil, being dilated under those circumstances, permits more light to pass through that part of the lens which is yet transparent.

Besides these evidences of cataract, we have the *catoptric test*, that is, the mode of examination of the eye by the reflection of light.

When a lighted taper is moved before the eye of a healthy person, three images of it may be observed :

1. An erect image that moves upward when the candle is moved upwards, and that is produced by reflection from the surface of the cornea.

2. Another erect image, produced by reflection from the anterior surface of the crystalline lens, which also moves upward when the candle is moved upwards.

3. A very small inverted image that is reflected from the posterior surface of the crystalline lens, and that moves downward when the candle is raised upwards.

In cataract this inverted image is from the first rendered indistinct, and soon abolished, and the deep, erect one is soon abolished also.

Causes.—Cataract is sometimes attributable to inflammation, and may be caused by wounds or other injuries of the lens. Impaired nutrition, hereditary predisposition, is an exceedingly common cause; it is also an accompaniment of some diseases, as diabetes.

There is no known treatment, either local or constitutional, that will cure cataract.

Nothing short of operation will benefit it.

ENTROPIUM.

This is an inversion of the eyelids, and is caused by the contraction of the margin. It is usually the result of conjunctivitis, or inflammation of the eye. If it exists for any length of time it causes considerable trouble, from the irritation of the edges rubbing against the eyeball.

Treatment.—Sometimes there is great relaxation of the lid; then we must gently bring it to its natural position, and apply a coating of collodion on the lid, or we may attach a piece of adhesive plaster to the lid, draw it down and fasten on the cheek. Should this not succeed, a solution of tannic acid applied over the lid, as directed for the collodion, is best. At the same time remove any local inflammation by the application of remedies mentioned under the head of Conjunctivitis.

ECTROPIUM.

This is an *eversion* of the eyelids—that is, a drawing away of the lids from the eyeballs, the conjunctival surface turned outward, and the edge or lashes, displaced, sometimes caused by a scar from a burn or other injury to the lids, and sometimes as a result of paralysis. In ectropium, the eyeball, being deprived of its natural protection, is exposed to constant irritation, and a state of chronic inflammation of the conjunctiva results, weakening the eye, and liable to run into ulceration, and may destroy the lachrymal duct. Then the tears pass over the cheek.

Treatment.—In recent cases, this is simple, and consists in applying:

R—Collodion	.....	§ 1
Tannic Acid	.....	grs. iil.

Mix, and apply to the lid with a camels hair pencil.

This is the only effectual remedy in ectropium. We may use such local application as are best calculated to subdue inflammation. Sometimes an operation is necessary.

PTERYGIUM.

In the affection thus designated, a portion of the conjunctiva, or triangular figure, belonging partly to the corneal division of the membrane, becomes thickened or otherwise altered with enlargement of its vessels, and increased redness. The basis and the larger part of the pterygium lie upon the sclerotica, the basis being towards the circumference of the globe; the narrow portion is situated upon the cornea, on which the apex gradually advances.

Symptoms.—Pterygium comes on quite insensibly, and grows very slowly. The patient experiences no great uneasiness, and is not aware that the disease exists till it has made some progress. Its slow increase is a distinguishing character of the affection; it will exist for many years without making much advance. Yet it gradually proceeds towards the centre of the cornea, and the advance of the opaque body in this direction naturally excites apprehension that it may ultimately interfere with vision, especially if there should be one on each side of the eye. I have known some instances in which it has been apparently stationary for a very long time, so that at the end of from ten to twenty years it has not enlarged so as to affect sight.

Diagnosis—The insensible origin, the very slow growth, the triangular figure, the peculiar vascular and fibrous change of the membrane, its loose connection with the surface of the globe, and the absence of previous or concomitant inflammation or uneasiness, sufficiently distinguish true pterygium from the thickening, swelling and increased vascularity of the cornea dependent on inflammation. If the term pterygium be confined to a change of texture thus characterized, it will not, I think, be seen before the middle period of life.

Treatment.—So long as the disease remains in the quiet, stationary condition I have described, neither interfering nor seeming likely to interfere with vision, it should be left alone. I have succeeded in removing several by the direct application of a strong solution of sulphate of zinc. This I prepare by adding a scruple of sulphate of zinc to one ounce of distilled water, and apply to the growth with a camel's hair pencil. This may be applied three times a day. If inflammation arises we should treat as in simple conjunctivitis. If carefully applied and properly limited no inconvenience will follow its use. In a short while the membrane substance will gradually recede and disappear altogether in one to two months.

MUSCÆ VOLITANTES.

This is little specks floating before the eyes, black spots flying over the field of vision, are produced by movable floating bodies near the retina. Always due to debility, those specks are nothing more than effusion. The removal of the debility, the fresh air of the country, tonics, attention, etc., are all that is necessary. *Specks* or *spots* on the eyes are frequently the consequence of inflammation. These may sometimes be removed by the application of myrica, or the

sulphate of zinc lotion. When these means fail, the only remaining expedient is a surgical operation, which if judiciously performed, will sometimes succeed.

A *blood-shot* in consequence of external violence, or straining by vomiting or coughing, seldom requires any thing more than to be fomented with warm milk and water, or a solution of sulphate of zinc.

A watery or weeping eye, proceeding from a relaxation of the glandular parts of that organ, requires some astringent application, as ten drops of myrica in one ounce of water, apply in the eye three times a day.

Fistula lachrymalis is a disease arising from an obstruction in the nasal duct preventing the tears and mucus from descending into the nose. A tumor is thus produced in the inner corner of the eye, and the tears and mucus run off down the cheek.

A cure for this troublesome complaint may be attempted by the frequent application of the extract of *phytolacca decandra*.

Strabismus or squinting, may proceed either from a nervous affection or a vicious habit acquired in children by having their eyes unequally exposed to the light, or by imitation from a squinting nurse or other example. When this defect has not been confirmed by long habit, it may be obviated by darkening the more perfect eye for some hours daily, by which means it will be gradually weakened, and the defective eye will be gradually corrected by using it. or the child may wear a mask which will only permit him to see in a straight direction. That condition of the eyes called *myopia* or *short sightedness*, may be in some measure remedied by the help of concave glasses, and in a contrary condition of the eyes, convex glasses will be requisite and useful.

When the sight is considerably impaired and weakened by too constant application, especially night-watching and candle-light lucubrations, these causes should be immediately abandoned, and the use of green glasses will greatly assist in mitigating the complaint. When the great importance of the organs of vision and their very complicated and delicate structure are duly considered, it will appear obvious that too much care cannot be taken for their preservation. On the least appearance of diseased eyes, excess of every kind should be carefully avoided, as the use of strong liquors or long abstinence from food, sudden transitions from darkness or obscure light into that of the bright light of sunshine, or the glare of candles. All irritating causes, as smoke, the vapors of stimulating or volatile substances, vivid lights and glaring colors, are to be considered as highly prejudicial to the organs of vision. Among the preventive means to be employed by those who are subject to disorders of the eyes, irritating plasters on nape of the neck, food of easy digestion, and occasional laxatives, are to be regarded as of no inconsiderable importance.

Various other diseases and derangements of the organs of vision are met with, they usually require skillful operation and manipulations to remove or overcome them, and the reader is referred to works on the eye for a full elucidation of the more obscure diseases of this important part of the sensitive system.

DISEASES OF THE EAR.

In its pathology the ear does not differ from other structures. From this general conclusion, perhaps may be excepted inspissation of wax in the meatus, the exanalogue of that secretion not being elsewhere met with. Inflammation, therefore, is the affection to which, for the most part, this organ is obnoxious, and as this disease is modified in its progress, in its symptoms, and in its effects by the structures which it attacks—by the local predisposition of the organ affected, by the general constitution of the individual, by the causes which may excite it, by the external circumstances or conditions which accompany it—so have the affections of the ear been arranged under various heads, nearly all of which may be reduced to inflammation and its consequences. As in all other organs, of which the seat of function is in an expanded nerve, the ear is likewise subject to an anæsthetic affection dependent on some hidden morbid condition and occasionally on inflammation either of the acoustic nerve or of those parts of the brain in connection with the organ. Again, in consequence of the vicinity of the ear to the brain, it often participates in the diseases and accidents of that organ; and the reverse is frequently observed of disease extending from the ear to the brain, or the skull.

Lastly of the accidental introduction of foreign bodies into the meatus; the rupture by a blow, or otherwise of the membrana tympani, have been esteemed peculiar to the ear; but perhaps hardly with justice, as nearly similar accidents are met with in the nasal and visual organs. Only such diseases of the ear as are frequently met with in a general practice will be treated of in this work. The reader is referred to the latest works on the ear for a more extensive description of diseases of this important part of the sensitive system.

 OTITIS.

Acute Otitis, Otagia or Earache, does not frequently attack the entire organ at the same time, nor from the same cause; but generally commencing in either the external ear, or the tympanum, it extends to the rest of the apparatus; thus, if the cause be applied, as often is the case, to the auricle or the meatus, the inflammation in its progress may reach the membrane and the cavity of the tympanum, and pass on to its appendages, and even to the labyrinth. If, on the other hand, the inflammation be excited in the tympanum, immediately or through the medium of the eustachian tube, it may spread inward to the labyrinth and outward to the meatus.

This circumstance evidently arises from the different degrees of exposure to the exciting causes to which the outer and inner divisions of the ear are liable; but it is very possible that the same sudden variation of the temperature may inflame at the same time the extended meatus, and the lining membrane of the tympanum, and thus that general otitis shall arise, but this is comparatively an unusual occurrence.

Causes.—The causes of otitis are similar to those producing inflammation in other organs, modified in their frequency by the predispositions of the structures. Among the most common may be enumerated cold, and especially applied to the ear, when its temperature is unnaturally raised; this exciting cause directly affects the auricle, and particularly the meatus, and indirectly the tympanum, through the eustachian tube—a foreign body irritating the auditory canal, and wax inspissated to extreme hardness may be considered as a foreign irritant, wounds of various kinds, sometimes lacerating or cutting the membrane, the extension of inflammation from the surrounding parts, particularly of erysipelas from the scalp, of scarlatina, of variola, of rubeola, etc., to the outer ear; of tonsilitis, or syphilis, or any affection of the fauces to the eustachian tube, and outward to the tympanum—of disease of the brain, or its membranes to the labyrinth—likewise irritating injections administered to the auditory canal.

Galvanism and electricity have been enumerated as exciting causes, when too freely used for the removal of deafness. Inflammation is described, also, to have arisen from metastasis in consequence of the sudden removal of cphthalmia, or of gonorrhœ; likewise to have been excited by a carious tooth. Otitis occasionally arises during the progress, or towards the termination of general acute disease, as continued or typhoid fevers.

The disease is occasionally seen to pass to the ear from the neighboring parts, and back again, forming an alternating vicarious affection; it also alternates in children with cutaneous eruptions, and especially during dentition. Individuals of scrofulous diathesis, of the syphilitic taint or having irritable mucous membranes, and those who are the subjects of cutaneous eruptions, are particularly predisposed to otitis; but this predisposition is most remarkable in strumous children.

The symptoms and consequences of otitis vary according to the structure of the parts inflamed, and as these variations are very great, authors are obliged, for the sake of perspicuity, to describe separately the diseases as they are locally situated; and hence the division of inflammation of the ear into external and internal, is not only justifiable but very useful.

Symptoms.—Acute inflammation may commence simultaneously in the auricle and meatus, the same cause affecting both parts at the same time, or it may be confined to either portion; but more frequently it extends from the one to the other, and generally from the auricle to the canal; yet the limitation of the disease to the meatus is a very common occurrence. Any cause of inflammation being applied will excite the auricle into disease; but it is more frequently affected with erysipelas, than with any other form of acute disorder. This part is peculiarized by the great readiness with which it becomes tumified, and in erysipelas by the large size of the vesications which are formed upon it; which circumstances are consequent upon the perfect organization of the skin and subcutaneous cellular tissue.

In the first instance there is rather sense of heat than actual pain; but afterwards there is a burning and painful sensation, which soon becomes almost intolerable; of course, the redness is excessive, the skin being naturally so very

well supplied with blood. From these circumstances it arises that one of the most distressing concomitants of erysipelas is the impossibility of the patient changing his posture from his back to lie upon his side, in consequence of the unbearable pressure upon the ear.

The tumefaction of the concha is often so great as to completely close the opening of the meatus, by which nearly complete deafness is occasioned, even when the inflammation does not, as it generally does, extend into the canal.

The disease often leaves the part thickened and hardened, by adhesive matter effused into the cellular membrane, or sometimes by a positive deposition in the fibro-cartilage.

In the majority of cases the auricle is restored in time to its normal condition by the process of absorption, but occasionally the part continues ever afterwards indurated. An abscess is sometimes produced, which endangers an ulceration of the cartilage, and occasionally ulceration, to which the structure of the auricle is predisposed, even takes place without the formation of matter; an opening is thus sometimes formed through the cartilage, which is exceedingly likely to become permanent.

Sloughing of the cartilage is also now and then the termination of its inflammation; this effect is most common when the ear has been frost-bitten, under which circumstance, the vital powers have been much reduced by the extreme cold, and are, therefore, incapable of bearing the consequent violent reaction.

The auricle is also the subject of erythema, of small-pox, of measles, in short, of all the inflammatory actions, either common or peculiar, which affect the cutaneous system. These different diseases pass through their ordinary stages and produce their usual effects, with modifications arising from the predisposition occasioned by the structure alluded to. The *treatment* must be conducted upon general principles; when the inflammation is high, the object of the treatment will be so far to lessen its severity, during the necessary progress, as to diminish the probability of the affection extending to the meatus; this desirable object, however, is often not to be obtained, and in many cases the patient must feel grateful if the spreading of the disease has been confined to the canal.

With the above view we should resort to stimulating emetics as the comp. powder of lobelia, with warm fomentations to the ear.

In the erysipelas variety the application of belladonna and glycerine will be found effectual.

One of our best remedies is :

R —Tr. Belladonna.....	℥ i.
Pure Glycerine.....	℥ ii.

Apply to the inflamed surface with a camel's hair pencil, once in three hours. Constitutional treatment should be active, and directed to the removal of local irritation.

R —Podophyllin.....	gr. iv.
Sugar of Milk.....	gr. viii.

Make four powders and give one at night.

INFLAMMATION OF TYMPANUM.

When existing, unconnected with disease of the tympanal cavity, may rather be considered as belonging to external than internal otitis.

Symptoms.—When inflammation occurs in the tympanic membrane exclusively, the patient suddenly feels an acute pain at the bottom of the meatus, following the application of some irritant, which is generally cold wind striking sharply against the membrane, or the introduction of some foreign body, or perhaps a mechanical injury resulting from the removal of hardened wax or a foreign substance; or it may possibly be occasioned by too great a degree of vibration in consequence of unusual strength in the sound applied. The pain is accompanied by buzzings as though something were fluttering in the ear, and by a lessened capability of hearing, and it is increased by loud sounds, by variations of temperature, and by pressure upon the ear. It becomes now and then unusually severe, which will continue for a few minutes, or sometimes much longer. When the membrana tympani is examined, with the assistance of a speculum and good light, it is found in mild cases, to be slightly reddened, and vessels may sometimes be distinguished upon its surface. In severe cases the membrane will present a universal blush, and blood vessels will readily be seen; it will be thickened and swollen, and the attachment of the handle of the malleus be imperceptible.

The milder degrees of inflammation, which may be termed sub-acute, rarely exist in general symptoms, and in the course of a few days the disease will subside. In the severe cases the local symptoms will be aggravated, with diminution of the cerumenous secretions of the meatus, which canal otherwise retains its natural appearance, and fever will be produced.

The consequence of a high degree of inflammation of the membrane, or when the affection has been long continued, may be anticipated. The disease may extend to the meatus, or inwards to the tympanal cavity; the membrane may become thickened by the adhesive inflammation, either throughout its whole surface, or in several spots, presenting a rugged appearance, and which being vascular, may resemble indurated granulations; a fungus growth may arise, which is, however, much more frequently produced by the chronic disease; little scales often exfoliate from the surface; the affection may terminate in ulceration, injuring to a greater or less extent the cavity of the tympanum; lastly, chronic disease may supervene. It would appear from this history that the disease is first seated in the external cuticular membrane, and in its progress, or severe form, extends to the fibrous tissue. This is the form and seat of inflammation, which has frequently been described as otalgia or earache, which term we have seen has been applied to all acute diseases of this organ. The sudden accession of the pain, and its frequent subsidence without medicinal aid, with the difficulty in many instances of obtaining a good view of the state of the membrane, may afford an excuse for the surgeon considering it purely neuralgic. It very probably, however, takes somewhat of a neuralgic character, as in the milder cases the vascular excitement does not appear to correspond to the

amount of pain and of general sensibility of the organ, and the nervous connections of the membrane will favor such suspicion.

Treatment.—In the treatment it is of much importance not to mistake the inflammatory character of the disease, as the introduction of opium and narcotics, which will benefit pure neuralgia, will here increase the excitement. In slight cases, the application of warmth and moisture over that side of the head, the maintenance of an equal temperature, the action of a purgative—and if there be no fever denoting increased action give a dose of lactuca, or papaver at bed-time. The more severe cases will demand the same line of treatment as directed in inflammation of external ear, to obviate the unfortunate consequences which may otherwise ensue.

If the acute disease should continue, notwithstanding the treatment administered, by which ulceration or induration, and thickening are threatened, the timely and judicious use of an alterative may be attended by the same happy results which are so conspicuous upon its administration in iritis.

OTITIS INTERNA.

This term evidently should include inflammation of the labyrinth; but as the immediate effects of acute disease in this intricate structure are not recognizable, and as they are only suspected in consequence of the derangement produced, it has generally been confined to inflammation of the tympanum, where the disease may be early detected by attentive discrimination, and where its effects become apparent to every observer. It should therefore rather be called *otitis media*, or inflammation of the middle ear.

The inflammation generally commences in the mucous membrane, and may or may not extend to the structures beneath, or it begins simultaneously in both, and in its course may reach and destroy the periosteum and bone.

It may be divided into three stages:

1. A simple puriform discharge.
2. A puriform discharge complicated with fungi and polypi.
3. A puriform discharge with caries of the tympanum.

Symptoms.—The symptoms of the severe affection, to a certain extent, resemble those of otitis externa, differing in consequence of the structure affected, of their greater severity, and of the circumstance of the matter when formed not meeting with a ready outlet. The symptoms are at one time ushered in by a severe pain in the ear, which is often neglected, and regarded as being what is commonly termed *earache*, and which may continue only for a few hours, or it may persist with occasional exacerbations, for two or three days, when it more or less suddenly extends to the whole of that side of the head. In other cases the symptoms commence with intense headache or insupportable hemi-crania; the febrile excitement is most severe, the eyes are injected, watery and intolerant of light, the countenance is flushed and anxious, the skin hot and dry, the pulse frequent and hard, the secretions are suspended, the pain becomes excessive and extends through the whole head, but is most severe on the side

affected, and the patient particularly refers, as the most painful part, to the bottom of the auditory canal.

The severity of the symptoms frequently abates in the morning, a reaction, often accompanied by rigors, coming on in the evening. The patient is also deaf on the affected side.

Causes.—The *causes* of internal otitis resemble those of the external disease, the most common is undoubtedly cold, applied through the Eustachian tube, or perhaps through the membrane, or generally to the side of the head, the extension of inflammation from the tonsils or the fauces, from the external ear through the membrane, or from the membrane itself; but by far the most frequent cause is a cold wind blowing along the meatus, in a predisposed subject, in which event the meatus is defended by its secretion from the effects of the *direct* application of the same draught of cold air which indirectly affects the tympanum to serious disease. Scrofula is the great predisposing cause of internal otitis, which is not commonly met with in individuals who have not this peculiar delicacy of constitution, excepting when excited by accidental causes. In like manner syphilis, and all debilitating diatheses, predispose to this affection.

Diagnosis.—So far the symptoms, though indeed acute, are insufficient to distinguish inflammation of the tympanum, from the most severe form of external otitis; to perfect the diagnosis, it is necessary to ascertain that the auditory canal is free from disease, and to take into consideration the longer interval of time between the first accession of pain and appearance of discharge. In external otitis the muco-purulent secretion occurs in a few days, or even a few hours; in the internal disease a week or more will elapse before any pus is discovered, and then it escapes suddenly through a rupture of the membrana tympani, through the Eustachian tube, or through the ulcerated mastoid cells; whereas in the external disease it is preceded by a serous moisture.

This may be considered as the first stage of the disease, and is that of inflammation, terminating in suppuration.

It sometimes happens that timely treatment in a good constitution so lessens the inflammation that it terminates in a mucous secretion, or in resolution; but in the great majority of instances it passes on to suppuration, and the escape of the pus may constitute the second stage. The distressing symptoms are relieved when suppuration is completed, in consequence of the pus being still retained in the tympanal cavity; no certain data therefore exist, by which it can be known that the secretion has taken place, until it makes its exit, which may happen in a week, or it may not occur until after two or three weeks.

Treatment.—In the severe form, whether primary or consecutive, our treatment must be directed to the removal of constitutional and local irritation.

To this end we would give an emetic of lobelia comp. and follow with a vapor bath, giving at intervals:

R—Fld. Ext. Asclepias.....	} aa.
“ “ Cyripedium	
	} ʒi.

Dose.—Thirty drops once in two hours.

Give an active cathartic at night, and if the symptoms continue we should give an active alterative.

R —Fld	Ext.	Iris Versicol	.....	.....	} aa.
“	“	Alnus Rub.	.....	.....
“	“	Rhus Glabra	.....	.....
“	“	Helianthemum	.....	.....
		Alcohol	.....	.....	} 3 i.
		Syrup Simplex	.....	.....
					3 ii.
					3 x.

Dose.—One teaspoonful once in three hours until you have a manifestation of its effects. The local treatment will consist in capsicum plaster to the nape of the neck and the application of warmth and moisture to the side of the head, and in the careful avoidance of irritating the meatus by injections or otherwise. A hop poultice is good when we have much pain and throbbing.

When the brain, unfortunately becomes implicated, then the head must be shaved, and evaporating lotions freely applied, either warm or cold, as may be the more soothing to the patient's feelings.

This treatment should be kept up until we have a termination of the inflammation.

OTALGIA.

Otalgia, or ear ache is caused by irritation of the auditory nerve, and though usually considered slight, or of little importance, it should have prompt attention, as deafness may, and often does, result from neglected irritation. If the earache is due to neuralgia, then we must adopt the treatment directed under that head, but in ordinary cases give :

R —Fld.	Ext	Lactuca	.....	.....	} aa.
“	“	Humulus	.....	.....
					3 i.

Dose.—Twenty drops in water every half hour, and apply in the ear :

R —Tr.	Aconite Fol	.....	.....	.....	} aa.
“	Belladonna	.....	.....	.....
“	Glycerine	.....	.....	.....
					3 ss.

Mix.—One to three drops in the ear, and apply in the ear cotton to protect it from the cold.

OTORRHŒA.

Inflammation and ulceration of the ear is attended with a muco-purulent discharge from the ear. We meet with it in all classes, but mainly in young children during teething, when we have great irritation reflected to the auditory nerves.

We have inflammation which, if neglected, finally runs into ulceration, or effusion, and then under ordinary treatment we have a permanent discharge from the ear. Few, very few, practitioners succeed in curing otorrhœa from the fact that they look upon it as a local disease, and treat it on that principle, and yet we seldom find it existing in a patient not of a scrofulous diathesis.

Keeping this fact in view, our treatment will always prove a success. We

must remove all local irritation, as near as possible, then we must improve the general health by a nutritious diet, animal food, milk, white of eggs, etc., etc. Salt water baths daily, or tri-weekly, are of the utmost importance. Internally, we have nothing better than the syrup of hypophosphites, comp. It meets the indications nearer than any thing I have ever tried. Locally I have usually succeeded in arresting the discharge with the following :

R—Fld. Ext Hamamelis	} aa.
" " Myrica Cerif	
" " NymphaeOdor	
	} 3 ss.

Add one teaspoonful to a gill of water, inject the ear twice a day. If there seems to be thickening, or tendency to ossification :

R—Iodid Potass.....	3 ss.
Aqua.....	3 viii.

Dissolve and inject with this. When the discharge is free and offensive, use the following :

R—Permanganate Potass.....	grs. ii.
Aqua Distil	3 i.

Wash the ear twice a day. This treatment will prove effectual, and should be continued until all symptoms have disappeared.

DEAFNESS

May result from various causes—acute inflammation is among the most frequent causes of deafness. Nearly all diseases of the ear may be traced to inflammation and its results. I would earnestly impress upon my readers the necessity of controlling all inflammatory conditions of the ear at once, not allowing them to pass into any of the terminations or forms of disease of the structure of the ear. From the great delicacy of the membrane of the ear, there is a great proneness to congestion, and this is liable to occur from cold, rheumatism, retrocession, or going in of some eruption, sudden exposure to a cold temperature, diving into cold water, irritating substances in the ear.

Treatment.—The ear, like the eye, is an organ that should not be tampered with. In all ordinary cases of inflammation we should give diaphoretic and diffusive stimulants internally, as :

R—Comp. Tinct. Serpentina.....	} aa.
Fld. Ext. Asclepias.....	
	} 3 ss.

Dose.—Twenty drops every two hours. Locally warm applications, the hot atomized spray from the atomizer applied directly in the ear. The sap or water out of white oak balls, one drop in each ear, will often remove deafness of long standing ; but for inflammation of the ear of a chronic nature accompanied with a discharge, we would advise the comp. syrup of frostwort, with iodide of potass. internally, and locally syringe the ear with a solution of permanganate of potass two grains to the ounce of distilled water, and drop in the ear one drop of glycerine.

When due to scrofulous affections of the blood, we must direct our treatment to the removal of the cause, before we need expect to effect a cure.

DISEASES OF THE CIRCULATORY SYSTEM.

HEART AND BLOOD VESSELS.

These, until the commencement of the present century, received but little attention. I shall arrange them as follows :

Inflammatory.—*Acute and Chronic.*

Organic.

Nervous.—*Real and Sympathetic.*

The diagnosis of inflammation of the heart or its tissues from that of the lungs, is confessedly difficult. In the former, however, we have the pain more severe and seated in the region of the heart ; greater deviations in the circulation and the respiration and the sputa are less affected.

Pathology.—Though organic changes are chiefly referable to inflammatory action, yet some of them occur independently of it, or, at least without its ordinary manifestations. Of organic affections there are three varieties : hypertrophy, caused by an excessive supply of blood ; atrophy, caused by an inadequate supply ; and alterations of structure, or new formations caused by a vitiation of the nutritive functions. Disorganization of the heart may be suspected from the following :

Symptoms.—Bloated face, tumid lips ; the complexion and lips purplish, though sometimes florid, or of a waxy pallor, with œdematous swellings, particularly about the eyelids ; countenance thin and sharp, eyes prominent and staring and the face haggard ; respiration short and difficult, with difficulty greatly increased on exertion or mental emotion ; in bad cases an inability to maintain the recumbent posture, and sleep disturbed by frightful dreams ; frequently dyspepsia, and as a consequence, perhaps of the gastric irritation, petulance and melancholy. But more is to be learned from the circulation. Heart's action commonly, though not always irregular, as is betrayed by palpitations and great variations in the *force* of the pulse. Engorgement of the superficial veins, a tumultuous circulation, or a pulsation in the larger veins, especially the jugular. Hence occur venous congestions, hemorrhages and dropsies. Primary irritation of the heart may be either *spasmodic* or *neuralgic*. The former is denoted by the peculiar nature of its pain, sudden remission and the extraordinary irregularity of the heart's action.

The *neuralgic* affection is denoted by a pain singularly sharp and darting, with less disturbance of the heart and pulse. In sympathetic irritation there is great disorder of circulation and almost invariably dyspepsia. As consequent upon cardiac disease, are the various forms of cerebral disorder—particularly ap-

oplexy, besides, inflammation or congestion of the pleura, lungs, liver, kidneys, uterus; thickening, or other changes in the alimentary canal, and hemorrhoids.

Causes.—As is predicable from the peculiar exposure of the heart to corporeal and moral influences, diseases of this organ are quite numerous. Hereditary disposition, connected or not connected with malconformation, there is a greater inclination to in the male than in the female. Extreme cold or damp weather seems to act as the most prolific cause.

Rheumatism and gout, misplaced, or metastasic. Excessive labor in doors, and in distorted positions of body. The consumption of ardent spirits. A stimulating or penurious diet. Inordinate venereal indulgence, or masturbation. Recession of cutaneous eruptions—of the exanthematous, and still more of the chronic. The strumous diathesis, and the syphilitic taint are alleged causes. Affections of other organs, such as various pulmonary diseases, chronic irritations of the primæ viæ, enlargement of the abdominal viscera, pregnancy. Cardiac diseases wonderfully increase during times of public terror. So violent is the action of the heart when sympathetic of the emotions, that it sometimes literally bursts. Besides this, the heart may be affected by whatever acts noxiously on the system. Hence it is that the pulse is so often appealed to as affording the most faithful criterion of morbid conditions.

Diagnosis.—Very obscure. From percussion little aid will be derived. This deficiency is in part obviated by auscultation; auscultation, however, may indicate lesions of the heart, where none exists; and, conversely, furnish no signs of such, when actually prevailing to a considerable extent. It often gives very useful and necessary information, though alone, and without the aid of other signs, it cannot, except in some rare instances, show certainly the existence of these affections. To acquire the arts of percussion and auscultation, requires an ear and training which the practitioner can command only by close study, observation and experience. The reader is referred to remarks on auscultation in another part of this volume.

Prognosis.—From the importance of the heart, and the inferior opportunity afforded for recovery by its ceaseless motion, cardiac diseases are invested with extraordinary danger. Yet some cases may be cured, and others so palliated that life may be prolonged with considerable comfort.

Post Mortem.—The appearances of the heart will be detailed in the consideration of its specific disease. But whatever the affection may be, provided it has been long continued and severe, a sensible increase takes place in the size and weight, and of the viscera of the three great cavities.

Treatment.—Should be most prompt. It is of the first importance to distinguish the inflammatory from the purely nervous. The remedies in the former, are alterative and evacuant, and subsequently sedative; in the latter, or nervous, they are in most respects the reverse.

CARDITIS, PERICARDITIS, AND ENDOCARDITIS.

Inflammation of the fleshy part of the heart is often met with ; still it is much less common than pericarditis. The heart and membranes may be simultaneously inflamed, and when any one is exclusively so we have no means of ascertaining the fact with certainty, and if it be done the treatment would be the same.

Symptoms.—Vary much, according to the violence of the attack. The incipient symptoms are commonly like those of pleuritis, or pneumonia. In the more advanced we have an acute, lancinating pain, sense of heat and constriction in the præcordial region, extending to the scapula or shoulder and arm, down to the elbow, increased by pressure between the ribs, and by a deep inspiration. Sometimes, however, pain is absent, or it is trivial, or dull and fixed, and may be felt in all its states, most in the epigastrium, or left hypochondrium.

Inability to change the position, particularly to the left side, or to straighten, or lie on it ; restlessness, anxiety, anguish, face pale, or occasionally flushed in the left cheek, or tumid, and sometimes leaden, at times bedewed with perspiration ; a disposition to syncope. Very characteristic is the inability to assume the recumbent posture, relief being afforded by the trunk being bent and the arms resting on some support in front. Heart usually bounding and forcible ; pulse strong, full and tense ; though the former may be feeble and irregular, and the latter small, corded, intermittent and jerking or thrilling. The pulses of the two arms may vary. Urine high-colored and scanty, bowels constipated or healthy.

Headache, distraction of the senses, jactitation, delirium, distortion of countenance, which may assume the expression of terror or despair. Complications with inflammation of the lungs, or their connections, or with other affections. Cases resulting from sudden metastasis of articular gout, or rheumatism, are marked by sharp, spasmodic pain, and laborious action of the heart, with great irregularity of circulation, and pulsation in the veins of the neck.

Causes.—Among these we may mention grief, joy, mental anxiety, violent muscular exertions, mechanical injuries, rheumatism, gout, etc.

Diagnosis.—This is difficult from the frequent complication of other inflammation of the chest. But in its simple form it is easily recognized. The peculiar countenance is very distinctive.

Endocarditis and fever of the lining membrane of the pericardium are marked, like inflammation in other serous tissues, with acute, lancinating pain ; but occurring in the fibrous portions of the pericardium, or the heart itself, the pain is more like a spasm, or it is rheumatic or neuralgic. But endocarditis is said to be attended with little pain—with only a feeling of præcordial oppression. At the same time that the heart's action is tumultuously violent, the pulse is feeble and intermittent, and thence rapidly follow extreme debility, great dyspnœa, tendency to syncope, etc. In the simple and early character of the diseases there is considerable fever, and the state just described, results from the mechanical

obstruction of the valves which may, from various causes supervene; or sometimes, perhaps, from the mixture of secreted pus with the blood.

In *pericarditis* when the effusion has become considerable, there is dullness on percussion. The contractions of the ventricles give a stronger impulse and a sound more marked than in a natural state. At intervals of various duration more feeble and shorter pulsations corresponding to intermissions of the pulse. Exceedingly characteristic of *pericarditis* is commonly held to be the *bruit de frottement*, a sort of rubbing or rustling up and down, compared to the friction of silk or parchment. This, at first, heard faintly, near the centre of the sternum gradually becomes more wide-spread and louder, and is then imitative of the creaking of the sole of a new shoe. From the last circumstance it is called the leather creak. It is produced by the opposing surfaces of extravasated lymph. But the value of this sign is much diminished by its frequent absence, its being inaudible, or by its being confounded with what closely resembles it, the sound emitted in valvular disease.

In *endocarditis* there is dullness of sound on percussion over the præcordial region, or still greater space. Uniformly present is the *bellows* sound.

Prognosis.—All cardiac inflammations are alarming, of which, however, *endocarditis* is more so than *pericarditis*. Life may terminate very suddenly and unexpectedly. Commonly such diseases, after running a course of several days, provided the brain and lungs escape, submit to our remedies entirely, or degenerate into some of those chronic states hereafter to be noticed.

Post Mortem.—The pericardium exhibits redness, arborescent, punctuated in patches or diffused. A concrete exudation on its surface, like that in pleurisy, though thicker more consistent and rougher. Effusions of serum in the sac amounting often to a pint. Sometimes, though rarely, effusions of pus. In *endocarditis* the lining membrane exhibits various colors, from a light rose tint to a bright red, or a purple or brownish hue, local or diffused. The inflammation is highest about the valves; and the tumidity there is such as must have interrupted the circulation. Discoloration alone is not decisive of inflammation; there must be coincident vascularity, or tumefaction, or change of structure, or effusions of lymph or pus. Coagula of blood are sometimes met with, which when organized are called polypi. The heart itself is generally somewhat tumid, vascular, and changed in color. Its surface is often coated with lymph, or spread with a collection of purulent matter. The interior of the heart is seldom much affected. Pulmonary lesions are discoverable in two-thirds of the cases.

Treatment.—In acute cases we should direct an active purgative:

℞—Podophyllin.....	grs. i.
Leptandrin.....	grs. ii.
Bitartrate Potass.....	ʒ i.

Mix.—Give at a dose, and after that an occasional laxative to keep the bowels soluble:

℞—Fld. Ext. Asclepias.....	} aa.
“ “ Serpentina.....	
“ “ Prun. s Vir.....	
	} ʒ ss.

Dose.—Thirty drops once in two hours, until free perspiration, alternating with:

Tr. Cactus Grandiflorus.

Dose.—Ten drops in water once in two hours, at night.

R—Fld. Ext. Cypripedium.....	} aa.
“ “ Lobelia.....	
“ “ Lactuca.....	
“ “ Papaver.....	
	3 ss.

Dose.—Thirty drops on retiring. This prevents the spasmodic action of the heart and quiets the nervous system.

In the rheumatic type we should resort to some general line of treatment, as directed under that head. Locally :

R—Tr. Lobelia.....	} aa.
“ Belladonna.....	
“ Capsicum.....	
“ Arnica.....	
	3 i.

Mix.—Apply over the region of the heart once in three hours, rub well in. The diet should be nutritious but unstimulating, perfect hygiene and room well ventilated but free from draught.

CHRONIC CARDITIS, PERICARDITIS, AND ENDOCARDITIS.

Pathology.—Essentially the same with that of acute carditis.

Symptoms.—Cases sometimes progress to a considerable extent without attracting any notice. Generally, however, there is some febrile movement from the first, or at least a hectic pulse. A jarring sensation given to the hand when placed over the heart, though there is seldom palpitation. Little or no pain in the præcordial region, and when it does occur it is obtuse and fugitive. But a sharp and permanent pain is sometimes felt in the epigastrium, hypogastrium, or between the shoulders. The stomach is sometimes irritable, and the head aching and giddy.

Continuing for months or years, the case grows worse, and henceforward displays no material distinction from the secondary form of the disease. The above is portraiture of the ordinary form, but arthritic and rheumatic cases vary considerably. In these is pain more acute and gnawing; greater anxiety and oppression in the præcordia; most violent palpitations, with a more disturbed pulse; excessive dyspnœa upon physical or mental excitement or the recumbent posture; the disease at first distinctly paroxysmal, and when rheumatic dependent on the states of the weather; peculiar petulance.

Causes.—Like those of the acute variety, or the disease may be a degeneration of an acute attack. It is oftener attributable to rheumatism than is the acute form.

Diagnosis.—Still more obscure than in acute carditis. In a large proportion of cases a careful investigation will lead to a correct inference.

Prognosis.—Of very difficult cure, yet not so intractible as to discourage our efforts.

Post Mortem.—1. A firm adhesion is sometimes found between the *pericar-*

dium and heart. The former is usually thicker and more opaque than is natural.

2. The *endocardium* is thicker, more condensed, opaque and rough, owing either to real hypertrophy or to an adventitious membrane.

This condition exists in an exaggerated degree about the valvular openings. The valves are rendered more or less adherent by lymph. But the valves in addition, present divers structural alterations, which will be pointed out subsequently.

3. The *heart* itself betrays the evidence of inflammation, chiefly restricted to the superficial layer of muscular fibres. Abscesses and ulcers are occasionally found in the substance of the organ. But it is sometimes, after the long existence of effusion in the pericardial sac, discovered to be in an atrophied condition.

Treatment.—Our best remedy is fld. ext. serpentaria, fifteen drops in a tablespoonful of water until we have free perspiration; give once in two hours. Locally, the liniment directed in the treatment of the acute form of this disease. Constitutional treatment should be alterative and tonic. I would advise

\mathcal{R} —Syrup Corydalis	℥ iv.
Iodide of Potass	℥ vi.
Aqua	℥ ii.

Mix.—Dose, one teaspoonful before each meal. Also:

\mathcal{R} —Fld. Ext. Asclepias Tub	} aa
“ “ Prunis Vir	
“ “ Cimicifuga	
“ “ Populus Trem	

Dose.—Twenty drops after each meal.

\mathcal{R} —Fld. Ext. Scutellaria	} aa
“ “ Cypripedium	

Dose.—Thirty drops in water just before retiring. A purgative at first, subsequently laxatives, to keep the bowels soluble. The drastics are only of service for the removal of pericardial effusion.

Simple food in moderate quantities, with mental and bodily quietude, are highly important.

This plan should be persevered in for a considerable length of time, according to Boerhaave's maxim, that *chronic diseases require chronic treatment*. Rheumatic cases are much benefited by a removal from a severe to a mild climate.

HYPERTROPHY.

This is an increase of the muscular parietes of the heart.

With this augmentation of the walls, the cavity may retain its natural size, or it may be expanded or contracted. The first variety is called simple hypertrophy; the second, eccentric or dilated hypertrophy, or hypertrophy with dilation; the third, concentric, or contracted hypertrophy, or hypertrophy with contraction. Hypertrophy may either embrace the entire organ, or it may be restricted to parts.

Pathology.—Hypertrophy may result from healthy nutrition carried to an exaggerated degree.

This state is occasioned by violent and protracted exercise of the organ, which enlarges under such circumstances like any other muscle of the body. Or it may arise from inflammation particularly rheumatic. In this case the organization is vitiated.

Symptoms.—The most prominent symptom is the extraordinary force of the heart's action, in which the pulse usually participates. The hand, applied to the præcordial region, experiences a sort of rebound, the end of each shock being marked by what is called the back stroke, or diastolic impulse, ascribed to the refilling of the ventricles. The pulse, owing to the lengthened systole, is preternaturally protracted. The capillary system has also an unusual activity, as is evinced by a florid or even flushed face, and brilliancy of eye. Occasionally there is slight dyspnœa. In the advanced stage disorder of system manifested by a pallid cachectic appearance, flaccidity of the integuments, dropsy, with œdema of the face, embarrassed respiration, or still graver pulmonary affection. Most characteristic, however, is perhaps the *disposition to hemorrhage*. No organ or structure maintains an immunity from hemorrhage, though the fatal cases are most often presented in the form of cerebral or pulmonary apoplexy. There is authority for believing that three-sevenths of each of these kinds of apoplexies are connected with this condition of the heart.

Causes. One of the principal causes, perhaps, is dyspnœa, from whatever source arising. All violent and habitual exercise.

Rheumatism, which by the irritation it maintains in the heart, invites an afflux of blood to it conducive to an excess of nutrition.

This nutrition, being vitiated by the existing morbid action, leads to the structural derangement incident to the case.

Diagnosis.—In *general* hypertrophy, a rare event, physical exploration reveals only violent action of the heart, and dullness of sound on percussion.

Of the left ventricle.—This is the most common position of *partial* hypertrophy. Denoted through the hand, and auscultation, by a very strong impulse between the cartilages of the *fifth and seventh ribs*, to which the strokes of the heart are confined, and here the sound from percussion is dull. Impulse of the ventricle lengthened; that of the auricle shortened. *Of the right ventricle.*—Stroke perceived most plainly at the bottom of the sternum. The resonance is duller, also, in this position. Hypertrophy of the left side is more apt to induce diseases, especially apoplexy of the brain; while hypertrophy of the right rather indicates the lungs.

Concentric hypertrophy.—Denoted by the dullness and obscurity of the heart's sounds, and their limitation to the præcordial region.

Eccentric hypertrophy.—Denoted by clearness of sound, and its diffusion over nearly the whole chest.

Hypertrophy is, in general, more easily distinguished than other cardiac affections. It is indicated by the fullness of the præcordial region. From dropsy of the pericardial or pleural sac, which also evince this fullness, it may by many symptoms be discriminated.

Prognosis.—By proper and *early* treatment, the disease is usually cured. It may at other times be so checked that the patient may live to old age without any serious inconvenience. Children are apt to outgrow it. The disease sometimes proves fatal from the supervention of cerebral or pulmonary apoplexy, or from hemorrhage or hydropic effusions.

Post Mortem.—The heart may increase in size three or four times, or from eight or nine ounces it may weigh as many pounds.

The substance of the heart is redder than natural, and the coronary arteries are tinged. The external and internal surfaces occasionally exhibit evidences of inflammation.

Treatment.—Keep the circulation equalized, and to this end we would recommend :

R—Fld. Ext. Serpentaria.....	} aa
" " Asclepias.....	
" " Prunis Vir	
	3 ss

Dose.—Thirty to sixty drops three or four times a day. Where we have debilitated condition of patient, give the syrup hypophosphites, soda, lime, potass. and iron, nitro-muriatic acid, fifteen drops of the diluted preparation, half an hour after meals. Alteratives, and the treatment directed in chronic carditis.

DILATATION OF THE HEART.

Hypertrophy of the heart, with dilatation known as active dilatation, where the expansion predominates over the hypertrophy; simple dilatation, where the thickness of the walls are normal; passive dilatation, where the walls are thinned—conditions often combined with mal-nutrition of the heart, and fatty degeneration of the muscular fibre. It is generally found in weak constitutions, or in persons of impaired health. The symptoms are consequently much modified and complicated by associate affections.

Pathology.—Dilatation is immediately owing to deficiency in the muscular powers of the heart, and obstruction in the circulation, inducing accumulations of blood in the cavities of that organ, whereby through mechanical pressure the cavities are amplified, and the parieties attenuated.

Symptoms.—Early in the attack, where this is slight, and the system in a state of tolerable integrity, the disease is difficult of recognition. A sense of weight and uneasiness in the præcordial region, or more extensively, feeble palpitations, pulse generally soft, small and slow; frequent and violent dyspnœa, with cough and copious expectorations, as in bronchitis, or humoral asthma, face pale and waxy, though occasionally livid, and the extremities cold; turgescency of the veins, particularly the external jugular, and consequent on this congestion hemorrhages and dropsies, senses and mental faculties obtuse, headaches apparently from fulness, and sometimes stupor, convulsions or apoplexy.

This disease is not always so violent as has been represented; some of the

most severe affections occurring only during the paroxysms, to which the disease is very liable.

Causes.—Whatever seriously and permanently impedes the circulation—as valvular diseases of the heart, liver, etc. Whatever disturbs the heart's action, particularly a vitiated state of the blood. But, in addition there must be a pre-disposition in the organ to such alterations.

Diagnosis.—Sometimes difficult, when the case is embarrassed with complications.

Distinguish it from *hypertrophy*, by the passive nature of its symptoms. From *engorgement of the cavities of the heart*, by the less round, equable, compressible distension of the præcordial region and by its permanency. From *nervous irritation*, by its permanency. But it is necessary in these cases to collate all the symptoms. Respecting the reputed physical signs in this affection, some prove nothing very decisive, and the rest are fallacious.

Prognosis.—A dangerous and intractable disease, particularly when connected with contamination of body, or the destructive lesions to be mentioned.

Post Mortem.—Increased size of the heart; paleness and flabbiness, or softening of its substance, attenuation of its walls; disease of the valves, septum, and columnæ carnæ. These changes may be universal, or embrace only a particular auricle or ventricle. Besides we meet with a multitude of lesions of the lungs and abdominal viscera.

Treatment.—The chief indications are, to rectify any abnormal conditions and improve the general well-being of the patient. Aid digestion with such tonics as hydrastia and cinchona. Stimulate the skin with warm medicated baths; remove existing tendency to hypertrophy with:

R—Syr. Stillingia Comp.....	0 i.
Iodide Potass	ʒ i.

Dose.—One teaspoonful three times a day. To promote muscular force—

R—Fld. Ext. Prunus Vir.....	} aa.
“ “ Asclepias	
	ʒ i.

Dose.—Thirty drops three or four times a day. Nervous irritation may be calmed by:

R—Fld. Ext Cypridium	} aa.
“ “ Lobelia	
Tr. Capsicum	
	ʒ i.
	ʒ ss.

Dose.—Thirty drops just before retiring. To impart energy to the muscular fibre of the heart, the tr. cactus grandifloris is splendid, ten to fifteen drops three or four times a day, also nux vomica. The irritating plaster over the spine between the shoulders.

ATROPHY OF THE HEART.

Symptoms.—Action of the heart very feeble, propensity to syncope, and the characteristics of the general pathological condition with which the cardiac disease is associated.

Causes.—Whatever produces a general marasmus of the body, the pressure of liquid effused into the pericardium, *ossification of the coronary arteries*.

Diagnosis.—The disease cannot be certainly determined.

Prognosis.—Commonly fatal.

Post Mortem.—The heart has been found diminished to half its normal size, and wrinkled.

Pathology and Treatment.—The opposite to those of hypertrophy.

RUPTURE OF THE HEART.

Symptoms.—These may be those of the pathological condition of which it is the effect, though sometimes the rupture occurs without any previous symptoms.

Causes.—Occurs mostly among males and old people. The rupture is *immediately* excited by whatever produces strong action of the heart.

Diagnosis.—Distinguished from cerebral apoplexy by the instantaneousness of death, and pallidness of the countenance.

Prognosis.—Nearly always fatal; perhaps when the rupture extends throughout the whole thickness, always so.

Post Mortem.—Besides the rupture we may discover ulcers, softening, partial atrophy, or partial hypertrophy.

Treatment.—Incurable.

CARDIAC VALVULAR DISEASE.

The frequency and fatal results of valvular disease, should never be lost sight of. The heart is a single organ, with the one function of propelling the blood through the system. It consists of a number of parts, each dependent upon the other for action. If the ventricle or valves of the left are injured, the right cannot do their work.

Unlike most other organs, one part cannot take the place of another, rest is impossible; no repairing process here. We may enjoy tolerable health with one lung impaired, with one kidney not acting, or performing its functions, but no disease of the heart can be compensated for in any way. Inflammatory attacks, rheumatism, gout, insufficient food, mental anxiety, overwork, alcoholic stimulants, tobacco, violent exercise, are among the exciting causes of disease of the valvular structure.

Pathology.—All the internal alterations in the heart result from inflammation. This gives rise to a deposit of lymph, or matter beneath the serous membranes and in this way the valves lose their transparency, and become thick, puckered and adhering to each other. The valves often become covered with exudations, vegetation or excrescences, become ossified, or the seat of calcareous deposits. The natural result is a contraction or narrowing of the orifice, obstructing the passage of the blood; *valvular obstruction*, or we may have thickening or shortening of the valves to make the orifice more or less potent and permit regurgitation of blood, valvular insufficiency, regurgitation, valvular obstruction, or insufficiency, often exist at the same time.

Symptoms.—In valvular disease we have difficulty of breathing, increased by exertion, palpitation, and irregular action of the heart, with abnormal sound or murmuring, detected by application of the ear over the heart, attenuation in the pulse, soft and irregular in mitral disease; hard and jerking but regular in diseases of the aorta. Congestion of the lungs, bronchitis, pneumonia, hemorrhage from nose, bronchi and stomach, œdema of lower extremities, arms, face, etc., dropsical effusion of feet, legs, stomach and abdomen; headache, neuralgia, and constant noise in the ears.

We usually have broken rest, frightful dreams, enlargement of the liver and spleen may ensue, digestion is impaired, cheeks puffed, lips red or purple, eyes assume a peculiar bright appearance. As the disease advances, patient becomes weak, nervous, suffers from over-exertion, mental emotion, food, exposure, etc. Death, usually, may be attributed, not directly to the disease of the heart, but to some secondary disease.

Causes.—Over-action of the heart and the ordinary causes of inflammation and perverted nutrition.

Diagnosis.—Both sounds of the heart are accompanied with bellows-murmur, harsh, rasping, cooing or whistling. The different sounds are caused by some obstruction to the free flow of the blood. The true sounds—diastole and systole, are the result of the free flow of blood and healthy action of the heart. The diastole sound is produced by a dilation, or spreading out of the heart and arteries, when the blood enters the cavities; systole, when these organs contract to send forth the blood.

Prognosis.—Always formidable, though taken in the commencement, and where it is dependent on mere thickening from chronic inflammation, it may be removed.

Post Mortem.—A part, or the whole, of the valves, are found altered in shape, and, in cases of long standing, converted from mere thickening into fibro-cartilage, cartilage, or osseous or calcareous substance. The aperture is sometimes much contracted by the altered form of the valve.

Vegetations may also exist along the basis and free margins of the valves. Besides there often co-exist other organic changes in the heart and other organs.

Treatment.—Must be directed to control the inordinate action of the heart to ward off or relieve the other symptoms as they appear, impart tone and strength to the general system—to the heart especially. When we have dropsical effusions, give :

R—Podophyllin..... grs. x.
 Leptandrin.....xx
 Bitartrate Potass..... ʒ ss.

Mix and make ten powders. Give one morning and night. Give occasionally a teaspoonful bitartrate potass. in a wineglass of water, with eight or ten drops of cactus grandifloris, alkaline bath, three to six times a week. In addition we want something to act on the blood—increase the quantity and improve the quality. If the case does not improve, I have found the following very good :

R —Fld. Ext. Buchu	}	
“ “ Uva Ursi		aa.
“ “ Hydrangea		—
“ “ Eupatorium Pur.....		3 ii.
“ “ Cimicifuga.....		

Mix—Dose.—One teaspoonful every three hours during the day, and to ten o'clock at night. As a tonic we should give cinchona comp. with phosphorus, as follows :

R —Tr. Cinchona Comp ..	ʒ viii.
Acid Phos. Dil.....	ʒ ii.
Syrup Simplex.....	ʒ vi.

Mix.—Dose.—One teaspoonful before each meal. This may be alternated with fluid ext. of prunus virginicus. Dose, twenty drops after meals.

A good, nutritious diet is one of the *best remedies*, and should not be lost sight of.

NERVOUS AFFECTIONS OF THE HEART.

PALPITATIONS

May be more violent than palpitations from organic disease.

Pathology.—The palpitations, at first merely irritative, may afterwards, as we are assured, lead to disorganization of the heart.

Causes.—Either a nervous or sanguine temperament, either a full or an anæmic condition, exhibits a predisposition. As exciting causes of temporary palpitations may be enumerated mental agitation, physical exertion, stimulants, indigestible food, the habitual use of opium, or of tobacco in any form.

Chronic palpitations generally arise from an irritation derived from some of the abdominal or other viscera, spinal irritation, hyperæmia, or anæmia.

Diagnosis.—Quick, strong, irregular action of the heart and pulse, which is very apt to be intermittent, a sense of agitation throughout the epigastrium and in the head, palpitations experienced more in repose than when up and moving about, sometimes continued the greater part of the night, increased by lying on the left side, often gastric disorder, a disposition to urinate, the discharge being pellucid and copious. Again, we may conduct a diagnosis by exclusion, discovering that the palpitations do not proceed from any particular organic disease. In nervous palpitations, the impulse, apparently great, is really moderate, and rarely repels the hand when placed over the cardiac region. The effect of anti-spasmodics is also very diagnostic.

Prognosis.—These palpitations generally do not lead to any serious consequence.

Post Mortem.—Sometimes, perhaps, hypertrophy, or dilatation, as an effect and serious disease of the chylopoietic viscera, or lungs, as a cause.

Treatment.—The palpitation being brought on suddenly from moral emotion, or inordinate physical exercise, the individual should rest for some time, and may in addition resort to a nervine in the former, and a mild purgative in the latter case. Proceeding from gastric disorder, employ an emetic, or, if sufficient, an antacid. In the chronic form we must address our treatment to the disorder, whatever it may be, of which the palpitation is an effect. The paroxysms are to be appeased when they occur.

ANGINA PECTORIS.

This is the disease in which great pain is felt about the chest, with a sensation of oppression and strangulation. It frequently appears in advanced life, and is more common among men than women. It is often associated with hypertrophy or enlargement of the heart, fatty degeneration, dilation of the heart, and diseases of the coronary arteries. There are several forms, and it may appear independent of structural causes.

Persons of a rheumatic or gouty diathesis are more subject to it than others.

Pathology.—The true pathology of angina pectoris is that it is an affection of the nerves that supply the heart, stomach and lungs.

It has its origin in a rheumatic or neuralgic tendency, involving mainly the pneumogastric nerve and the branches communicating and connecting with the heart and stomach.

Symptoms.—The general symptoms are paroxysms of intense pain and constriction about the heart, in fact, the pain and constriction are such that it is often mistaken for asthma. Those attacked with angina pectoris have a peculiar horror of impending death, and no doubt suffer all the pangs of dissolution. The attacks seldom last more than a few minutes; it may come on at any time. If the patient is walking he is compelled to stop at once. Upon examination, the pulse will be found slow and intermitting, the breathing short and hurried, countenance pale and dejected, surface of the body cold, or covered with clammy sweat, consciousness unimpaired. When the paroxysm passes off, the patient regains his usual health; but without prompt relief the disease finally proves fatal.

There are two forms of the disease—acute and chronic. The acute form is sudden in its attacks, severe pain in the region of the heart, extending to the shoulder, arm, wrist and fingers. When angina pectoris arises from hypertrophy of the heart there are powerful pulsations of that organ, which can be seen at a distance. When it arises from dilation of the ventricles, there is extra heavy pulsation of the jugular vein, vertigo and weak pulse. When connected with

disease of the valve of the heart, there will be difficult breathing, feeble irregular pulse, haggard appearance, swelling of the feet and ankles.

If the disease is chronic, the paroxysms occur frequently—the most trifling cause may produce it. The pain involves both arms, and ascends to the jaws. It is always aggravated by the slightest movement, and a neuralgic pain is usually present under the breast bone. It is only distinguished from asthma by the acute and peculiar pain in the breast bone and left arm, and by the different surroundings or causes of such disease. The shortness of breath in asthma is dependent upon spasmodic contraction of the muscular fibres and their branches. In angina pectoris the pain resembles neuralgic pain more than any thing else.

Treatment.—If we see the patient during the paroxysm, our best resort is diffusable stimulents, such as brandy, wine, tinct. capsicum, tinct. zanthoxylum, etc. Place the patient in bed, give small dose of cactus grandiflorus or fld. ext. lobelia, ten to fifteen drops every three hours until relieved. Counter-irritants between the shoulders is good; also, active friction with stimulating liniment, salt-water, etc. The treatment in the interval between attacks should be alternated between tonics and alteratives. The following is good:

R—Syrup Iris Versicol Comp. O i.

Dose.—One teaspoonful in water before each meal. Give at the same time:

R—Tr. Ferri Chloride.....	} aa,
“ Hydrastis Can.....	
	3 ss.

Dose.—Twenty drops in water half hour after meals. Avoid all alcoholic stimulants, as they only aggravate the disease. The syrup of hypophosphitis is excellent.

Fld. ext. of valerian, or prunus vir is good. The chances of a cure depend upon the cause of the disease. If it arises from organic affection of the heart, we cannot promise more than relief; but if dependent upon disease of the pneumogastric or cardiac nerve, then we can administer remedies with a fair prospect of success. When the disease arises from affections of the nervous system, give fld ext. valerian, forty drops before meals, and tinct. nux vomica, ten drops after meals. A good diet is essential to the final success of any treatment.

ACUTE ARTERITIS, OR INFLAMMATION OF THE ARTERIES.

Pathology.—Mere redness is not to be regarded as proof of previous inflammation, since this appearance often takes place after death, particularly in typhoid cases, and where the blood is preternaturally fluid.

Symptoms.—The disease as an idiopathic affection, being very rare, its symptoms are not very well understood. They are said, however, to consist in a vehemence of pulsation in the inflamed vessels: a sense of heat and pain along its course, with a corresponding streak of redness; extreme pain on pressure.

As *general* symptoms, we have extreme restlessness, nausea and faintness, and where the aorta or pulmonary artery is concerned, dyspnœa, cough, and thoracic pain are apt to be present.

Causes.—Probably those of cardiac inflammation. More generally it proceeds from an extension of pulmonary, cardiac, or abdominal inflammation.

Diagnosis.—There can be no positive discrimination of internal arteritis.

Prognosis.—The severer forms of the disease often fatal. The chief danger proceeds from the obliteration of the artery from effused lymph, or from the diffusion of the pus secreted by it, or softening, or other organic changes of its texture.

Post Mortem.—The most common appearances are redness of the interior membrane, interspersed with white spots; occasional extravasations of lymph, and depositions of pus; and thickening ramollescence, and ulceration of the arterial surface.

In inflammation of the great arteries within the chest, these appearances may be extended to the heart. Indeed the red staining sometimes pervades the vessels, and hence has probably arisen the erroneous notion of fever being dependent on arteritis.

Treatment.—Same as that of similar inflammation of the heart.

The arteries are subject to CHRONIC INFLAMMATION, which, though some authorities constitute it the most common affection, I am of the opinion is a comparatively rare event. By those who hold the other notion, it is probably made to include

DEGENERATION OF ARTERIES.

These consist of extraneous deposits of fibrous steatomatous, cartilaginous, calcareous, osseous and other matters. From such metamorphosis no artery is exempt, but the remarks are here confined to the arteries of the cavities. The artery most usually thus affected is the aorta, and next are the cerebral arteries, by which is laid, as is now believed, the foundation in the majority of cases of cerebral apoplexy and some of epilepsy. The pulmonary artery is seldom thus involved.

Pathology.—When consolidation merely has taken place in consequence of the infiltration of lymph or albumen, it is the effect of inflammation; but where the identity of structure has been lost, then the change is referable to a vitiation of the nutritive process.

Symptoms.—The disease is seldom betrayed by any marked symptoms until it has reached a considerable height. Subsequently we have that sort of distress and other effects, which proceed from an embarrassed circulation.

Causes.—The affection most incident to old age—particularly ossification. Other causes are the long prevalence of gout or rheumatism, syphilis, the abuse of mercury, intemperance in eating or drinking, and perhaps hereditary influence. But often these changes occur without any appreciable cause.

Diagnosis.—We cannot, either by symptoms or physical signs, diagnosticate this disease with certainty.

Prognosis.—Generally incurable.

Post Mortem.—The deposit is between the coats. Sometimes several kinds of degeneration are exhibited at the same time, the case progressing from the softer to the harder deposits. Of the aorta, the beginning and arch are mostly affected.

Treatment.—At an advanced period, little can be anticipated besides mere palliation. The measures are not materially different from those to be pursued in organic diseases of the heart.

ANEURISM OF THE ARTERIES.

By *aneurism* is meant a dilatation of an artery. This may occur from the simultaneous distension of all the coats, or by some of them giving way, causing an extravasation of blood, or by a solution of continuity in the interior coats, while the outer one maintains its integrity. These forms receive the respective names *true*, *false* and *mixed* aneurism.

Here will be considered aneurism of the internal vessels only. They are all liable to the affection, but the aorta being pre-eminently so, will be mainly regarded. The lesion is nearly always found either in ascending portion or arch.

Pathology.—From a loss of contractility, the pressure of the blood gives rise to permanent dilatation.

Symptoms.—Being deep-seated and small, it is said to be not detectible and death may give the first intimation of disease. Being, however, more developed the symptoms are cachectic aspect, palpitations or other strong pulsations, dyspnoea, cough, disturbed sleep, a tendency to syncope, irregular distributions of blood creative of congestions, and sometimes lividity of countenance, passive hemorrhage and serous effusions. These symptoms though common to many of the cardiac affections are apt to be more intense.

Causes.—Like those of associated cardiac affections and spontaneous aneurism in external arteries.

Diagnosis.—Very pathognomonic when it exists, is a tumor-like prominence in the situation of the aneurism with a heaving pulsation. The paroxysmal occurrence of the symptoms best distinguishes the nervous affections which resemble aneurism in their manifestations.

Percussion at the top of the sternum may elicit a dull sound, and through the stethoscope applied to the same region, we may discover a loud, rough or abrupt *bellows sound*, or a purring murmur, or a slight whizzing.

Prognosis.—Incurable by art, aneurism of internal vessels, and even the aorta is occasionally cured by *nature* from the coagulation of blood in the sac, and its ultimate conversion into a small, dense, tumoroid mass.

Post Mortem.—The artery having been ruptured, we discover the blood in one or more of the contiguous organs. The parietes may be found either attenuated or thickened. The rupture may occur from the tenuity of the parietes from ulceration. When the aneurism is large, surrounding parts are removed by absorption excited by the pressure. Even bone itself cannot resist. Ossification or other degenerations in other parts of the artery may be associated. The pulmonary artery is rarely affected.

Treatment.—Nature points clearly and emphatically as to the mode of cure, the throwing out of coagulable lymph, which, with the fibrine of the blood,

forms a layer more or less organized on the inner surface of the aneurismal tumors; this gives rise to membranous bands, which shoot down from all parts of the walls of the sac, which tend to retard the blood in its meshes, and thus aids coagulation. Every thing that improves the health will aid this process—highly animalized diet, beef, eggs, oysters, milk. Improve the vital energies by cinchonia, iron, nitro-muriatic acid, phosphorus, but restrain or retard the action of the heart, keep the circulation at 65 or 70, strict quietness of mind and body, change of air, regular secretions.

If this does not succeed, give :

R—Tr. Cactus Grandiflorus.....	.....	} aa.
Fld. Extract Prunis Vir.....	.....	} ʒ ss.

Dose.—Twenty drops once in three or four hours, alternate with :

R—Fld. Ext. Myrica.....	.....	} aa.
“ “ Nympha.....	.....	} ʒ ss.

Dose.—Thirty drops three times a day.

Pressure upon the artery above the tumor has succeeded. It mechanically diminishes the flow of blood through the sac; it physiologically enables the fibrine to coalesce and become easily and readily entangled in the parieties of the sac, and if the case is managed judiciously, this will increase until the contents of the tumor solidifies, and the circulation may be carried on by the natural channel, or else obliteration may occur at the point; then the collateral branches become enlarged—the circulation is carried on by them. Compression is best effected by two or three instruments with graduated compresses.

A ligature applied to the artery, at some distance above the aneurismal tumor, cuts off the current, the pulsation in the tumor at once ceases, fibrinous coagula are diminished by absorption, and gradually degenerates into an impervious cord.

Electricity has been successful in producing coagulation of the aneurismal tumor. An injection of the following will produce instantaneous coagulation :

R—Glycerine.....	.....	ʒ iv.
Carbolic Acid.....	.....	ʒ i.

Mix.—Inject two or four drams, according to the size of the tumor. But of all modes of cure, I am most partial to constitutional means.

Fibrinize the blood, restrain the circulation, and coagulation is certain.

PHLEBITIS.

Once a very common disease, especially when bleeding was resorted to for every disease, inflammation of the vein was a common result. It is rarely met with now, and is usually due to an abrasion, scratch or irritation, with which some poisonous matter has come in contact.

Treatment.—No matter to what cause the inflammation is due, there is no remedy like the sulphite of soda. Give :

• R—Tr. Capsicum.....	} aa.
" Lobelia	} ʒ ss.
Fld. Ext. Asclepias	} ʒ i.

Dose.—Thirty drops three times a day before each meal, and the sulphite of soda, ten grains, half hour after meals. Give beef tea, eggs, cream, etc. Locally paint over the corded vein with creosote or carbolic acid, until white, then poultice with flax seed, and a cure is soon effected.

DISEASES OF THE ALIMENTARY SYSTEM.

INFLAMMATION OF THE TONGUE.

Glossitis, or inflammation of the substance of the tongue, is usually dependent upon some constitutional cause or some irritant applied directly to the part. In either case there is fever, great nervous depression and debility. In all cases, the local symptoms are those of pain, heat, redness, swelling—the tongue protrudes out of the mouth.

It comes on quickly, and is often attended with urgent symptoms, and requires prompt treatment, active purgatives, and diaphoretics administered per rectum, if unable to swallow, ext. of lobelia and asclepias, in combination should be given in say thirty drop dose every two hours, mucilages of elm should be applied to the tongue. If impending sense of suffocation takes place, tracheotomy should be resorted to.

If it comes on from mercury, chlorate potassa, iodide potass. internally with baths of sulphur soap.

Ulcers or patches on the tongue are generally due to mal-nutrition and come properly under the head of apthæ. Warts and condylomate are not uncommon on the tongue in syphilitic affections. They should be destroyed and the diseased condition treated with alteratives.

INFLAMMATION OF THE MOUTH.

This is occasionally met with in children, depends commonly on mal-nutrition, and is usually seen as follicular ulcerative and gangrenous and stomatitis.

The treatment in all cases consists in perfect cleanliness, fresh air, thorough hygiene, antiseptics, tonics, alteratives, nutritious diet, and gargles of gold thread, or permanganate potass.

APTHÆ.

However harmless the sore mouth may be considered, it is undoubtedly a disease of debility arising from acidities in the first passages, or some other acrimonious humor lodged in the stomach and bowels, or from indigestion whether occasioned by bad milk or other unwholesome food. This disorder generally appears first in the angles of the lips, and then on the tongue and cheeks, in the form of little white specks. These increasing in number and size, run together more or less, according to the degree of malignity, composing

a thin white crust, which at length lines the whole inside of the mouth, and extends into the stomach and through the whole intestinal canal, producing, also, a redness about the anus. If the specks are of a pale color, superficial, and easily fall off, they are not considered dangerous; but when the crust falls off, and is succeeded by another of a darker color, or livid hue, it is reckoned the worst kind. In forming our prognosis of the termination of the disease, it is necessary to attend to the sensibility of the stomach and bowels, and the appearance of the egestion.

Frequent vomiting, repeated thin stools, with griping and tender state of the abdomen, are very unfavorable; drowsiness, oppressed breathing, moaning, spasms, and great languor, with frequent pulse, are symptoms indicating danger. A remarkable propensity to sleep, fretfulness when awake, and an unusual heat in the mouth, are among the premonitory symptoms of fatal termination of the disease. In its mild form, or when it is an original disorder, it is never attended with any fever; but when it has arisen in consequence of severe bowel complaints, or other infantile diseases, it is not unusual in such cases for the thrush to be accompanied with fever of the low kind. In mild and recent cases of this disease, when the apthæ is confined to the mouth, and appears in a few scattered spots resembling little pieces of curd sticking to the surface of the tongue, or within the lips, it may in general be easily removed by keeping the bowels duly open with syrup rhubarb et potass. given daily.

Many regard apthæ as a salutary complaint, and in consequence of this erroneous belief, the disease has been neglected until it has extended down to the stomach and intestines, producing cough, and great difficulty of breathing, with other symptoms of a disordered state of the stomach and bowels. Under these circumstances the most active remedies must be employed or we shall be unable to arrest its fatal termination.

Treatment.—Give the little sufferer an emetic at least twice a week. After the action of the first emetic, put it upon the following:

<i>R</i> —Syr. Rhei et Potass.....	ʒ iii.
Fld. Ext. Serpentaria.....	ʒ ss.
Sulphite Soda.....	ʒ ss.

Dose.—Half a teaspoonful every three hours. To the apthous spots, where not deep seated, apply:

<i>R</i> —Fld. Ext. Myrica.....	ʒ i.
“ “ Baptisia.....	ʒ ss.

Mix.—Add one teaspoonful to a gill of water, and wash the mouth once in three hours, or instead use a saturated solution of sulphite of soda to the apthous spots. This local treatment should be kept up for some time, until we rectify the diathesis and bring about healthy nutrition. After we have brought about a change both in the ulcer and in the process of assimilation, then a lotion of:

<i>R</i> —Sulph. Hydrastis.....	grs. x.
Aqua Camphor....	ʒ iii.

Apply to the spots, or wash out the mouth three to four times every day.

Local treatment will fail unless assisted with proper constitutional remedies. Our best remedies are those that rectify acidity and promote assimilation, as :

R—Syr. Hypophosphite comp.

Dose.—One-half to one teaspoonful three times a day. We might alternate, after giving hypophosphite for a few days, with :

<i>R</i> —Glycerine.	℥ iv.
Acid phos. Dil	℥ ii.

Mix.—*Dose*.—Half a teaspoonful thrice daily. Baths are important, daily salt-water bath, friction, warm clothing, exercise, fresh air. Hygiene perfect and thorough. The diet must be the best, one that is calculated to promote health. It must be as nutritious as can be digested and assimilated ; it should include beef, oysters, poultry, Liebig's food, milk, eggs.

Besides the above form of apthæ due to mal-nutrition, we may have a variety of other forms dependent upon some specific poison in the blood, as the poison of syphilis, lead-mercury, tubercle, etc. ; these give rise to molecular inflammation of mucus membrane giving us syphilitic apthæ, lead and mercurial apthæ. All varieties of apthæ are essentially contagious and infectious in a direct communication of the poison that gives rise to ulceration ; these varieties of apthæ should be treated by destroying the ulcers with nitric acid, by gargles of myrica cerifera, gold thread, hydrastis, and in all cases antiseptics must be administered to correct mal-assimilation. Our best antiseptics for this purpose are yeast, baptisia and sulphite of soda.

Otherwise the case must be managed on general principles ; if syphilitic, a general alterative and tonic treatment is indispensable ; if lead and mercury be present, iodide of potassium in some vegetable alteratives with alkaline baths ; if due to tubercle, syrup of hypophosphites comp.

Cancrum Oris.—This may be the result of apthæ, provided the patient is subject to overcrowding, absence of all sanitary and hygienic surroundings, the generation of an animal poison superadded to the irritation of the ulcer which gives apthæ a gangrenous or phagedenic condition. The poisonous matter in connection with the pus from the ulcers are swallowed, causing ulceration of gums, cheeks, œsophagus, stomach, bowels, putrid diarrhœa, offensive breath. The treatment is the same as apthæ, not omitting antiseptics to destroy the septic poison which produces such destructive ravages.

BUCCAL GLANDS.

The mucous follicles, seated in the buccal membrane, opposite the molar teeth, are often the seat of tubercular deposit, which forms quite an impediment to the proper function of the mouth, as their secretion is arrested and the mouth imperfectly lubricated. I have met with a number of cases.

The remedies to be depended on are alteratives, etc.

Peculiar cases have occurred that resisted all treatment for a period of years, and suddenly yielded to the administration of iodine and phosphorus. The following is a good method of administering iodine :

R —Comp. Syr. Stillingia.....	0 ss.
Fld. Ext. Alnus Rub.....	aa.
“ “ Iris Versicol.....	3 ss.
Iodide Potass.....	3 ss.

Mix.—*Dose.*—One teaspoonful three times a day. Locally :

R —Unguentum Phytolacca.....	3 i.
Muriate Ammonia.....	3 ii.
Iodide Potassa.....	3 iv.

Mix.—Spread on leather and keep constantly applied. Give :

R —Fld. Ext. Prinos.....	aa.
Acid Phos Dil.....	0 ss
Syrup Simplex.....	3 ii.

Dose.—One teaspoonful three times a day after meals ; the best diet, thorough hygiene, warm clothing, fresh air.

TONSILITIS.

Inflammation of the tonsils, prevalent during spring and autumn, when the weather is variable, sudden changes, etc.

Symptoms.—Heat, and dryness in the throat, preceded by chilly, shivering sensation ; throat filled with mucus, glands in the jaw become swollen, hawking, spitting, and constant effort to swallow, attended with pain, respiration is difficult and hard, feverish symptoms.

Duration is from six to twelve days.

A person who has had several attacks of tonsilitis may have it without any constitutional implication. This is true also when the habit is scrofulous. But ordinarily the disease soon terminates in resolution, suppuration, or induration. In some cases the inflammation is very superficial and diffusive, like that of erysipelas.

Causes.—Cold and damp air, or cold in any manner applied, so as to cause a sudden check of the perspiration, may be regarded as the exclusive cause of this disease.

Persons become predisposed to the disease by suffering an attack of it. The principal danger arises from the swelling of the tonsils, which may proceed to the extent of entirely interrupting respiration.

When it does not end in resolution, it almost always terminates in suppuration. Frequent attacks of the disease are apt to produce permanent enlargement of the tonsils. The inflammation has been known to extend into the larynx, in which case the danger is greatly increased.

Treatment.—In acute cases we would give an emetic of lobelia comp. and follow with :

R —Fld. Ext. Serpentaria.....	aa.
“ “ Asclepias.....	3 ss.
Tr. Capsicum.....	3 ss.

Dose.—Twenty drops in water every two hours.

Locally we would use as a gargle :

R —Tr. Capsicum.....	} aa.
Fld. Ext Baptisia.....	
" " Xanthoxylum.....	
" " Myrica Cer.....	
	3 ss.

Mix, and add one teaspoonful to a half pint of water. Use as a gargle every three hours. Externally :

R —Tr. Belladonna.....	} aa.
" Arnica.....	
Aqua Ammonia.....	
	3 ii.

Rub well in over the region of the pain. In chronic tonsilitis we would put the patient on a thorough alterative course, as :

R —Syr. Stillingia comp.....	O i.
Iodide Potass.....	3 ss.

Dose.—One teaspoonful before each meal.

R —Tr Sanguinaria.....	} aa.
Fld. Ext Xanthoxylum.....	
" " Asclepias.....	
" " Dracontium.....	
	3 ii.

Dose.—Twenty drops three times a day in sugar and water. Meet other indications as they arise, building up the general health with tonics, nutritious diet, etc.

PAROTITIS.

Inflammation and tumefaction of the parotid glands, occasionally epidemic and manifestly contagious.

Symptoms.—Hard swelling of one or both parotids—the swelling increasing till the fourth day, and then declining gradually. Skin over the tumor seldom red or inflamed; the breasts in females and the testicles in males often swell about the period of the declension of the parotid tumefaction; a *sudden* metastasis often takes place from the parotids to these parts. *Fever* generally mild, sometimes violent. Children and young persons are most subject to this disease. It is most common in cold and damp weather.

Causes.—An epidemic influence, or perhaps contagion. It resembles contagious diseases, certainly in there being an immunity against a second attack.

Diagnosis.—Differs from ordinary inflammation of the parotid in the greater rapidity of swelling, the tendency to spontaneous subsidence, the difficulty of mastication, and the peculiar painfulness in masticating sweet substances—in a more general constitutional disturbance, its disposition to metastasis, and its usually prevailing epidemically.

Prognosis.—Not in general a dangerous affection; becomes more or less dangerous by being translated to other parts—as the genital organs, the lungs, the brain, the stomach.

I have known a case terminate fatally in less than an hour, by metastasis to the brain; when transferred to the testicles they occasionally suppurate—an occurrence always exceedingly painful, and sometimes fatal.

Treatment.—There is but little danger, and very simple treatment is required. A gentle purgative with some warm tea, or the following will suffice :

R—Fld. Ext. Asclepias a.....	aa.
“ “ Serpentaria.....	3 ss.

Dose.—Twenty drops every three hours. Apply tepid water to the throat, or bathe the throat with :

R—Tr. Capsicum.....	aa.
“ Belladonna.....	3 i.
“ Arnica.....	3 i.

Where the swelling disappears from the neck and attacks the testicles or mamma, we should adopt some active alterative course with warm applications to the neck and the discutient ointment to the affected parts. When the mamma or testes are involved, the following will be found to give almost immediate relief :

R—Tr. Lobelia.....	aa.
“ Belladonna.....	3 i.
“ Aconite Fol.....	3 i.
“ Glycerine.....	3 i.

Apply a flannel saturated with the above,

DYSPHAGIA.

Difficulty of swallowing exists in several varieties. It sometimes occurs from nervous irritation, especially in young women of irritable, nervous temperament, who suffer from weakness, or diseases peculiar to the sex. In these cases it is purely nervous, no emaciation, no pain, the attack comes from nervous excitement alone. Difficulty of swallowing may occur from spasmodic constriction of the pharynx, seldom met with, however. We also have it from mechanical injury of œsophagus, and is usually brought about by swallowing hard substances, or imperfectly masticating food. Difficulty of swallowing, by producing congestion, will sometimes produce apoplexy.

Treatment.—Our best remedies are relaxants. I have often relieved with a teaspoonful of lobelia. The following is also excellent :

R—Tr. Chinchona Comp.....	3 iv.
“ Nux Vomica.....	3 ss.
Phosphoric Acid Dil.....	3 i.
Glycerine.....	3 iii.

Mix, and give one teaspoonful every three hours, or three times a day.

Should it proceed solely from nervousness, in females, the cause must be removed, and then give :

R—Fld. Ext. Cimicifuga.....	ai.
“ “ Cypripedium.....	3 ii.
“ “ Scutellaria.....	3 viii.
Tr. Capsicum.....	3 viii.
Syr. Simplex.....	3 viii.

Dose.—One teaspoonful before each meal,

ACUTE GASTRITIS.

Anxiety, heat and pain in the epigastrium, increased by taking any thing into the stomach, an inclination to vomit, and immediate rejection of the ingesta, hiccup,

Symptoms.—Burning, pricking lancinating pain in the stomach, nausea and vomiting, extreme soreness with pain on pressure, tenderness, constant desire for cold drinks which are instantly vomited up. The tongue is generally red at tip and edges, covered in centre with white or yellowish fur. Patient lies with limbs drawn up, as in this position the muscles are relaxed. We have great depression, prostration, constipation, and scanty, high-colored urine; pulse small and wiry; intolerance of food or warm drinks.

Causes.—Acrid or indigestible substances taken into the stomach, such as poison, caustic alkalies, arsenic, mercury, tartar emetic and other irritants; alternations of temperature; draught of cold water while the body is hot; suddenly repelled eruptions and metastasis, especially of gout.

Diagnosis.—From spasm by the pyrexial symptoms and burning heat; from enteritis by the seat of the pain; by the burning sensation, vomiting and tendency to hiccup, even before the gangrenous termination, which in enteritis is a mark of gangrene having commenced.

Prognosis.—If in the course of two or three days, the pain and sickness cease, while the pulse becomes more free and full, and diminishes in frequency, the urine depositing a sediment, and the bowels becoming spontaneously loose, a favorable termination may be expected. The unfavorable symptoms are a continuance of disease for several days, the pulse increasing in frequency, and hiccup remaining in spite of the medicinal process.

Treatment.—The intense thirst is one of the most persistent symptoms to allay this, keep cold cloths over the stomach, and give:

R—Tr. Lobelia.....	} aa.
Fld. Ext. Asclepias .....		ss.

Dose.—Thirty drops every hour in the smallest possible quantity of water—gum arabic or slippery elm water is best. Give an injection of cold beef tea three times a day. Apply a warm flax-seed poultice sprinkled with pulverized capsicum, over the stomach, renewing at intervals. Sponge with soda dissolved in water, every three hours. Rub well in over the stomach:

R—Tr. Belladonna	} aa.	
" Hyosciamus		
Glyceri .e		3 i.

Continue this treatment until the irritation or inflammation is controlled, then establish convalescence on white of egg and milk, arrow root, etc. When the vomiting is persistent give, say, mucilage of elm with loaf sugar and a few drops of lemon juice. If there is delirium, or other urgent symptoms, give fld. ext. scutillaria and pulsatilla equal parts, and give in thirty drop doses, in a table-spoonful of slippery elm tea.

CHRONIC GASTRITIS.

Chronic inflammation of the mucous membrane of the stomach, is of much more frequent occurrence than is generally supposed. The worst forms of dyspepsia, and all that host of inveterate gastric and bilious derangements of which so much is heard, and the true nature of which is so often misunderstood, are, in nine cases out of ten, the consequence of a more or less inflamed condition of the mucous membrane of the stomach.

Symptoms.—A pricking, lancinating, or burning pain in the epigastric or hypochondriac region; the pain is constant and harassing, generally confined to a very circumscribed spot, and often attended with a feeling of constriction; sometimes a sensation is felt as if a ball were pressing on the diaphragm; at others as if a bar were fixed across the stomach impeding deglutition; depraved and impaired appetite, often general abhorrence of food; indigestion, vomiting or nausea, load at the stomach after eating; pulse but little excited and heat of the surface natural, except during digestion, when they are a little elevated; great costiveness during first period, but mucous diarrhoea after the disease has become inveterate; the patient becomes irritable, dejected, taciturn, discontented, tongue of the color of logwood, with a strip of thin fur along its centre. In inveterate cases, emaciation *with the skin drawn tight over the muscles*, so that it cannot be pinched up. The tightness of the skin is the most constant diagnostic sign of the disease. Mere gastric debility may be distinguished from it by the effects of an emetic; when fever, pain and anorexia become increased after the operation of an emetic, we may be sure of the existence of high irritation or inflammation in the mucous membrane of the stomach.

Causes.—Indigestible and irritating diet, acrid medicines received into the stomach; the abuse of spirituous liquors; exposure to a cold and damp atmosphere; frequently the consequence of acute gastritis.

Treatment.—We would give:

R—Fld. Ext. Nux Vomica.....	5 ii.
“ “ Dioscorea.....	aa.
“ “ Cinchona.....	3 ss.

Dose.—Twenty-five drops in water half an hour after meals.

R—Sulp. Hydrastia.....	grs. xxx.
Aqua Calcis.....	3 xvi.

• *Dose.*—One teaspoonful before each meal.

Inflammation of the stomach, also, may lead to ulceration, and its train of evils.

Ulceration of the stomach is usually seated at the posterior surface, or lesser curvature or pyloric pouch, generally round or oval shaped. A fatal termination may result from hemorrhage, perforation, or exhaustion.

ULCERATION OF THE STOMACH.

This generally begins with obstinate vomiting, showing either congestion or inflammation of the stomach. The vomiting may recur almost daily for months after inflammation has subsided. It is divided into three varieties: Superficial ulceration, follicular ulceration, and chronic or perforating ulcer. This distinction is made out post mortem, the symptoms of ulceration being rather obscure.

Pathology.—Ulcer of the stomach may originate in various ways; and when it terminates fatally it is usually by perforation of the stomach. When this happens there are violent paroxysms, attended with unusual pain in the abdomen, ending in collapse and death. The abdomen is found distended with air, and fluid similar to that vomited; the coats of the stomach greatly thickened, especially the parts near the ulcer.

Symptoms.—An important symptom is pain, epigastric or dorsal, increased by pressure. This may occur with ulcer, but not necessarily a positive symptom. It may be an indication of an inflammatory condition of the stomach. To be positive of the existence of ulcer, the numerous symptoms must be well marked. The pain is accompanied with vomiting and hemorrhage at some stage of the malady in nearly all cases. If a case of sudden profuse gastric hemorrhage, we have to take into consideration the probabilities of it being associated with scirrhus of the liver, vicarious menstruation, purpura, or disease of the heart. If it cannot be attributed to any of these, and we have the epigastric and dorsal, we have strong reasons to suspect ulceration. It is true, we often meet with cases of gastric hemorrhage, complicated with depressed nerve-power and malarial disease apart from a special gastric affection. The gastric mucous membrane may suffer from hemorrhage by paralysis of the arterial nerves.

Treatment.—In the greatest number of cases the same treatment should be adopted as for chronic gastritis. The irritating plaster should be applied over the stomach and removed every other day, free suppuration is desirable.

R—Fld. Ext. Leptandrin.....	} aa.
" " Myrica	
" " Geranium.....	
	3 ss.

Dose.—Ten drops in mucilage of slippery elm, three or four times a day. To relieve pain, check irritation and support the strength, give:

R—Fld. Ext. Papaver.....	3 i.
Tr. Nux Vomica.....	5 ss.

Dose.—Ten drops once in two hours.

This will bring up the nervous system, check the expenditure of tissue generally. I have found small doses of sulphate of hydrastia—say, one-half grain, once in four hours—effectual in promoting healing; so, also, the occasional use of the syrup of iodide ferri. If there is diarrhœa, give geranium and myrica; if there is hemorrhage, large doses of myrica; if there are eructations of air, regurgitations of food, inflammation of the mucous membrane, vomiting

of sour fluid, lime-water in milk answers well. The pain would always seem to be relieved by papaver and nux vomica. The secret of success is rest, perfect rest, in the recumbent posture—this is essential.

The diet should be bland, farinaceous, pulpy, given in small quantities, at short intervals, so as to avoid distending the stomach. If the stomach rejects every thing, suspend all nourishment for a time and give nutritious enemata.

Our chief object in treatment must be to improve the general condition of the system, by nutritious food, giving remedies calculated to improve the general mucous surface and invigorate the organ as much as possible.

DYSPEPSIA.

The varieties of dyspepsia include all morbid conditions of the stomach, such as irritations of all kinds, chronic gastritis, and different forms of gastric depression or debility. The name, instead of expressing any particular pathological state, has reference merely to a result which may proceed from different conditions of the stomach.

Pathology.—The stomach in dyspepsia is in a state of comparative inactivity, being less of the solvent secreted, and less muscular movement to favor solution.

Food remains in the stomach longer undissolved, and sometimes is not dissolved at all. The gastric secretion is altered in quality, becoming acrid and irritating, producing vascular irritation of the mucous membrane, and often a sympathetic nervous irritation of the muscular coat. Hence the heartburn, gastralgia and spasm, and frequently the vomiting and headache of dyspepsia. It is probably from defective innervation that the peculiar epigastric uneasiness arises.

Symptoms.—One of the most prominent symptoms is a feeling of vague uneasiness in the epigastrium, not amounting to pain, but is often worse. This feeling is diffused over the epigastric region, and often extends to the hypochondriac, chest and left side, and even to the shoulder and down the arms. The uneasiness is greatest when the stomach is empty, and is often replaced after eating by a sense of fullness or weight.

Not unfrequently, along with debility of the stomach, there is an increase of sensibility, so much so that substances swallowed will occasion acute pain, and tenderness of the epigastrium on pressure. The appetite is usually more or less impaired; sometimes craving or perverted. The patient commonly experiences a sensation of hollowness or sinking at the epigastrium when the stomach is empty. Thirst is not unfrequent. Regurgitation of food, or of a sour, bitter, acrid liquid.

Eructations of wind are common symptoms. Among other disordered sensations, having their seat elsewhere, dependent upon, or produced by an extended operation of the same cause, are headache, giddiness, heaviness of the head, pains between the shoulders in the back, irritability of temper, fretfulness, etc. A tendency to low spirits, indisposition to exertion, dyspnœa, palpitations, short, dry cough, are not unfrequent symptoms. The patient sleeps

badly, awakes unrefreshed, an depressed in mind, sometimes a morbid tendency to drowsiness. The tongue is usually furred, especially in the mornings.

The bowels are usually constipated, unless complicated with chronic enteritis or excessive secretion of bile.

The urine is variously affected, sometimes scanty and high colored, in others copious and limpid and almost colorless. The patient usually loses flesh, sometimes becomes much emaciated with flabby muscles, sunken abdomen, a pale, sallow skin, with an anxious expression of countenance.

Causes.—The influence of sedentary habits, and errors of diet, are probably the most prolific sources of dyspepsia.

Exercise, to a certain degree, is necessary to the support and vigor of every part of the body. The stomach, consequently, participates in the debility which results from the want of it. The gastric energies are impaired. The quantity and quality of the food taken are those adapted to undiminished powers of digestion. Hence it results that the weakest stomach is stimulated into undue exertion, and subsequently falls into a proportionate degree of languor. This ends at length in a morbid gastric depression, constituting dyspepsia. The habitual use of food difficult of digestion has the same effect in a healthy stomach.

Larger quantities of food than the stomach can well manage, food insufficiently masticated, the excessive use of alcoholic liquors, opium, strong coffee and tea, tobacco, and especially the depressing emotions—grief, anxiety and fear.

Treatment.—In the treatment of every form of dyspepsia, the diet should be regulated and easily digested. Nutritious food is demanded. New bread, tough or salted meats, alcoholic or fermented liquors, over-exertion, nervous exhaustion, should be carefully avoided. We may improve digestion by rest, early hours, relaxation and change, salt water bathing, cold sponging, horse-back riding, etc. Our remedial agents, and they never fail in my hands, are the syrup hypophosphites before each meal. Half hour after meals give :

R—Tr. Nux Vomica Comp.....	aa.
“ Sanguinaria.....	—
Fld. Ext. Dioscorea.....	3 ss.

Mix.—Dose.—Twenty drops in water. At night give :

R—Fld. Ext. Populus Trem.....	aa.
“ “ Humulus	3 ss.

Dose.—Twenty-five drops before retiring. In taking meals, eat slowly, masticate well and rest at least one hour after eating.

We may alternate with :

R—Tr. Cinchona Comp.....	3 viii.
Acid Phos. Dil.....	3 ii
Syrup Simplex.....	3 vi.

Dose.—One teaspoonful before each meal. After meals :

R—Fld. Ext. Eupatorium Pur.....	aa.
“ “ Xanthoxylum.....	—
“ “ Sanguinaria	3 ss.
“ “ Helonias Dio.....	—

Dose.—Twenty drops in water.

Some mild laxative at night. Keep the bowels regulated with neutralizing mixture and leptandrin. No drastic purgatives but mild relaxants.

CANCER OF THE STOMACH.

The stomach may suffer from schirrus, medullary, or colloid cancer; the affection is generally *primary*.

The pyloric aperture is the most frequently attacked, next the cardiac orifice, and then the space along the smaller curvature. Sometimes the cancer, at the time of death, is of small extent, but occasionally, and especially in the colloid cancer, the disease spreads until the greater portion, or even the whole of the stomach, is involved. When the disease causes obstruction, narrowing of the pyloric orifice, the stomach generally becomes greatly dilated. Gastric cancer is more common in men than in women, and is rare before the age of forty. Very few cases survive two years from the first appearance of the symptoms. In schirrous, the most common variety of gastric cancer, life may rarely be prolonged for three years, while in encephaloid and colloid, death often takes place within twelve months.

Symptoms.—These will vary with the situation of the disease; when it is in or near the cardiac orifice there will be merely pain and some difficulty in passing food into the stomach; if in the pylorus, pain and sickness, when a few hours after eating—digestion being completed—the chyme has to pass into the duodenum; while, when the lesser curvature is the seat of the affection, the suffering will be often slight.

Speaking generally, the principal symptoms may be described thus: pain in the epigastrium of a burning, lancinating or gnawing character, augmented after eating, and often increased by pressure, pain, anterior and posterior eructations of fetid air, frequent nausea and vomiting, at first of ingesta and glairy mucous, subsequently of a bloody, sanious fluid, and sometimes of dark grumous matter, having a coffee ground appearance; constipation and extreme and increasing emaciation and debility.

Occasionally a pulsating tumor is felt in the epigastrium when the cancerous mass lies over the aorta; or a tumor may be detected in some part of the epigastric, umbilical, hypochondriac regions, so placed as not to receive any impulse from the aorta. And then, in almost all cases, the countenance will present a peculiar cachectic hue and expression so characteristic of the cancerous diathesis. In malignant, as well as in simple ulceration of the stomach, *perforation* may take place, with escape of the contents of this viscus—fortunately not always in the peritoneum. Communications are this way sometimes formed between the stomach and the outside of the abdomen, or between the stomach and duodenum, or even between the stomach and pleural cavities, lungs or pericardium.

Gastrocolic fistulæ are much more common than gastro duodenal, while they have generally for their cause malignant rather than simple ulceration. In gastrocolic fistula moreover, the stomach and colon are not always found closely

adherent ; but a cavity may intervene, as if a mass of cancerous or tuberculous matter had connected the two, and had been gradually hollowed out. The symptoms produced by such a fistula are chiefly fœcal, vomiting and the expulsion of undigested food with the stools, owing of course to the passage of the contents of the colon into the stomach, and of the gastric matters directly into the large intestines. When these effects follow upon the symptoms of malignant or simple gastric ulcer, the diagnosis cannot be a matter of much difficulty. In the treatment of cancer of the stomach, we should pursue the same general course as laid down under the head of cancer.

ACUTE ENTERITIS.

This is an inflammation of the small intestine, and varies in its intensity. With active treatment resolution is soon effected. We are at a loss to determine in enteritis just where the inflammation is located ; it may extend to all the coats of the bowels, or to only one. There is no mark, no manifest symptoms that enable us to say whether the duodenum, jejunum, or illium are affected.

Symptoms.—Fixed, burning pain in the abdomen about the umbilical region ; obstinate constipation, nausea and vomiting, the latter being sometimes so severe as to communicate inverted action to the intestines, and produce stercoraceous discharges by the mouth ; fever with a small, frequent, and tense pulse ; very rarely, the pulse is full and hard ; dry and red tongue, urgent thirst, dry and hot skin, urine high colored and small in quantity ; respiration short and performed by the intercostals exclusively ; position on the back, with knees and shoulders elevated.

When the upper part of the colon is affected, acute enteritis is often attended by symptoms of pleuritic or hepatic inflammations.

Causes.—Atmospherical vicissitudes ; exposure of part of the body to cold ; getting wet in the feet, spasms of the bowels, and strangulated hernia. Very often inflammation is actually induced by a constipated bowel ; sometimes this is only a predisposing and assisting cause.

Diagnosis.—From colic by the presence of pyrexia and the increase of pain upon pressure, from gall-stones, from nephritis, from gastritis.

Prognosis.—The constipation giving way, the pulse becoming fuller and less frequent, the pain changing its seat, the abdomen becoming less tender and tense, equal, warm and free perspiration, with sediment in the urine, are favorable tokens. The unfavorable ones are rigors, which are not very common in enteritis ; sudden cessation of pain, while the pulse increases in frequency ; hiccup ; cold extremities ; clammy and partial perspiration, and an increased tension of the abdomen.

Treatment.—This should be directed to equalize the circulation, and with this end in view I would prescribe :

R—Fld. Ext. <i>Serpentaria</i>	} aa.
“ “ <i>Cimicifuga</i>	
	} ʒ ss.

Mix.—Dose.—Half a teaspoonful every two hours. To relieve pain, we would give :

R.—Fld. Ext. Lactuca.....	aa.
“ “ Humulus.....	ss.

Dose.—Twenty to thirty drops every three hours until relieved. Over the bowels we would advise the application of warm poultices of slippery elm or linseed, sprinkled with capsicum—change as often as cold. This is one of the best means of restoring the vital powers to the intestines.

After the urgent symptoms have passed, we would give :

R.—Tr. Cinchona Comp.....	ss. iv.
“ Nux Vomica	ss.
“ Hydrastis Can.....	ss. i.
“ Sanguinaria	ss.

Mix.—Dose.—Forty drops in sugar and water every four hours. As a drink give sweet milk three parts, lime water one. Mix, and take as freely as the thirst demands.

Establish convalescence on a good tonic, keep the patient quiet and for several days confined to bed.

Rest is all important, and to that end we would give the lactuca and humulus freely as long as there is pain.

CHRONIC ENTERITIS.

This modification of enteric inflammation is of frequent occurrence. Its symptoms are often obscure and equivocal. Most of the cases usually termed marasmus, consist of chronic inflammation of the mucous membrane of the bowels. Chronic diarrhœa also generally depends on this grade of internal inflammation.

Symptoms.—No distinct abdominal pain, obtuse pain or firm pressure on the abdominal parietes ; a sense of soreness also is felt ; muscular debility, pulse small and weak, cold hands and feet, slight febrile exacerbations in the evening pain in the bowels, or nausea after taking food, frequently constant diarrhœa ; in inveterate cases the skin is dry and sallow, sleep interrupted, tongue smooth and red round the edges and brown in the middle, great emaciation, painful diarrhœa, alternating also with costiveness, appetite variable, being sometimes voracious, at others entirely gone ; the food is often evacuated from the bowels in an imperfectly digested state ; the alvine evacuations vary in appearance, sometimes slimy and small in quantity, at others copious, liquid and dark. The disease continues for many months and even for several years.

Causes.—Sometimes the consequence of acute inflammation of the mucous membrane of the bowels, irritating and indigestible food, the influence of a cold and damp atmosphere, drastic cathartics and other irritating substances whether received from without or generated in the bowels.

Treatment.—Chronic enteritis should be treated similar to chronic dysentery, the two are often so intimately connected that the plan of treatment laid down under that head will apply to chronic enteritis.

The diet should be light and nutritious, the quantity regulated to suit the requirements of the case; thorough hygiene, perfect rest, salt water bathing, country air; the mind free from care and avoidance of all stimulating, irritating substances, either as a diet or medicine. This, with treatment laid down under head of dysentery, will succeed in every case where the vital power has not run too low.

INFLAMMATION OF THE CÆCUM.

The cæcum, or its appendix, situated in the right iliac fossa and covered by the peritoneum—anteriorly and latterly—may be seriously diseased without any other part of the intestines being affected. Thus, severe colic, and even fatal ileitis, may arise from the lodgement in this part of the alimentary canal of hard fæcal matter, skin or stones of fruit, biliary and intestinal concretions, balls of lumbrici and ascarides, etc.

Sometimes the intestinal matters accumulate to such an extent as to produce a large tumor, and many are the cases where the patients have recovered upon passing an immense quantity of fæces, after a careless practitioner has diagnosed abscess or cancer of the kidney.

When any of the morbid matters get impacted in the vermiform appendix of the cæcum, dangerous inflammation, ending in abscess, is very likely to arise; while, as we shall presently see, the persistence of disease in the appendix may form the starting point of the morbid process in the cæcum itself. The inflammatory process may affect only the vascular surface, or all the coats of the cæcum; in either case, the affection being termed *cæcitis* or *typhlitis*, or typho-enteritis. So we may merely have *inflammation of the appendix cæci*, which is attended with more acute symptoms than simple typhlitis, or the abundant areolar tissue, which connects the cæcum to the psoas and iliac muscles may be especially involved, and then *perityphlitis* is the rather pedantic name applied to the disorder.

Whether it be true or not that an important part of the process of the digestion is carried on in the cæcum, it cannot be denied that irritation, and perhaps, the suspension of the functions of this part by disease, soon gives rise to prominent *symptoms*. Thus, there is always more or less general constitutional disturbance, slight fever, nausea, and often constipation, together with fulness and tenderness in the right iliac region, the pain being rendered exquisite by pressure upon the cæcum or the parts in its immediate vicinity. The patient lies on his right side, with the trunk bent and the knees drawn up, so as to relax the tissues about the seat of inflammation. The pulse is not quickened to the same extent nor is the countenance as anxious as in peritonitis or enteritis. Supposing the disease to progress, the peritoneal surface of the cæcum becomes involved, the appendix gets inflamed, and we soon have evidence of the existence of general peritonitis while the areolar tissue may also be affected, and suppuration and abscess result.

The latter may be open externally, or into the intestinal canal, and the patient

recover, but sometimes the matter is discharged into the cavity of the peritonæum, causing great suffering, and in a few hours death.

If the inflammation begins in the appendix from constitutional causes, or owing to the escape into this part of morbid matters, the symptoms are generally very acute, consisting especially of excruciating tormina, violent sickness, pain in right testicle and thigh, and obstruction of the bowels. Gangrene of the affected part, with general peritonitis, frequently ensue and prove fatal. In tuberculous typhlitis ulceration occurs more frequently in the appendix than in the cæcum itself. The early symptoms of peretyphlitis are severe pains shooting from the right iliac region diarrhœa and tenesmus, nausea, fever, etc. The parts around the seat of inflammation become swollen and unless resolution takes place, suppuration occurs. Frequently the abscess opens into the cavity of the cæcum, and with care the patient recovers.

Occasionally the physician meets with cases of chronic inflammation of the cæcum, in which the symptoms come on very slowly, with failing health, weakness and loss of flesh, colicky pains in the right iliac region, flatulence, and anorexia, and alternately diarrhœa with constipation. Frequently the mucous coat of the bowels ulcerates; and then there are numerous mucous discharges, with attacks of hemorrhage, the loss of blood at times being considerable. If there be much thickening of the walls of the cæcum and tumefication, the case might be mistaken for an aneurism of the iliac artery. If death occur it is generally from exhaustion, while at the autopsy the intestinal coats are found considerably thickened, inflamed and ulcerated. Very rarely is there perforation.

Treatment.—The treatment of all affections of the cæcum requires considerable caution. Generally speaking, anodyne fomentations or poultices will require to be assiduously applied while lactuca is given internally. This latter remedy must be used so as to keep the patient free from pain, and its influence should be maintained for several days. Effervescing drinks, lemonade, and ice, will be useful in relieving the nausea, while if it appear necessary to obtain an action from the bowels, sweet oil enemata may be employed. In chronic cases I have seen most good from simple nourishing food, warm bathing, sedative linements used night and morning, and the employment of small doses of nitro-muriatic acid and cinchona. If an abscess points externally, it should be opened.

CONSTIPATION.

In ordinary good health, the intestinal apparatus completes its revolution once in twenty-four hours. In other words, once in twenty-four hours the process of mastication, digestion, nutrition, absorption, and the carrying forward for an expulsion of the fæces should be accomplished. Any deviation from this, is a deviation from a natural or healthy standard, and will eventually result in a constitutional derangement or diseased condition.

Constipation is a morbid condition or derangement affecting a part or the whole apparatus. Although it may not appear to give any inconvenience at the

time, it will eventually cause trouble. There is a condition of gastro intestinal torpor, but no structural disease. The natural peristaltic action of the bowels is deranged, either from a deficiency of bile or healthy secretions from the liver, or torpidity of that organ.

A deficiency of bile, constitutes a prominent difficulty in constipation. We have deficiency of vitality of the nervous system, and hence we often find it an attendant upon scrofula, anæmia, chlorosis, general nervous debility, etc. Constipation, like all other derangements of healthy functions, if not relieved, progresses from bad to worse. The retention of *effete* matter in the bowels is a source of discomfort, to say the least. It impedes the progress of assimilation, the food does not perform its proper function; so we have growth and nutrition arrested, and consequently lack of nervous energy and muscular power.

Treatment.—The treatment of constipation by purgatives, is irrational and unscientific, and the victims of habitual constipation have come to feel there is no cure for them—only temporary relief.

To make a success in our treatment, we must know the cause upon which it depends, and set about removing that. To cure constipation, we do not need purgatives; they do more harm than good. We must give tone and strength to the nerves and biliary functions, and improve the secreting powers of the intestines. Habit has a wonderful effect on constipation, The habit of relieving the bowels at a particular time every day—say after the morning meal. In many cases, scrupulous attention to this will soon overcome the constipation. The act of eating gives an impulse to the peristaltic action, and consequently an action is much easier at this time. Moderation in every thing, daily bathing, exercise, friction to the whole body, especially the spine. Water internally is a valuable agent, drinking water freely, just before retiring at night, and first thing of a morning, has a beneficial effect, not only in this, but in other diseases of arrested nutrition, etc. Habitual constipation and want of secretion may be promptly relieved by the following:

R—Fld. Ext. Leptandrin.....	aa.
Tr. Nux Vomica	3 ss.

Mix.—*Dose.*—Twenty drops in water at bedtime. Give fifteen drops dilute nitro-muriatic acid in a wine glass of water before each meal. If this fails give:

R—Pul. Oxgalls.....	grs. x.
Ext. Nux Vomica.....	grs. ss.

Mix, and give night and morning.

I have found in some cases electricity acts well. Apply the positive pole to the spine, and the negative to the bowels, or apply the positive to the tongue, and the negative to the rectum. Wholesome and digestible food, ripe fruit, light bread, daily exercise, avoid too much sleep.

I have found a tonic bitters composed of the following, acts well:

R—Hydrastis Can.....	aa.
Helonias Dioi	3 i.
Sanguinaria.....	3 ss.

Steep in a quart of good spirits, and take a tablespoonful before each meal. As we are creatures of habit, many of the ills and shortcomings of life may be traced to that, and we have really very few cases of habitual constipation that can not be traced to something of this kind; and, as habit produces the derangement, so will habit, with a little assistance to nature, correct it.

INFLAMMATORY DYSENTERY.

This is an affection or inflammation of the alimentary canal, attended with fever, fetid or bloody evacuations, and appears to be contagious. It is often as intractable as Asiatic cholera—prevails in both city and country. It may be in isolated cases, but usually attacks great numbers in one place, while adjacent towns are free from it. In some instances the inhabitants of the most healthy country towns are attacked with it and die off in great numbers. If not speedily overcome after it appears it assumes the form of bloody dysentery, and becomes highly dangerous. It prevails throughout the year, but with greater violence during the months of July, August and September.

Pathology.—Dysentery of the form now under consideration, is evidently an inflammation of the mucous tissue of the primæ viæ, particularly of the large intestines. So long as it is confined to the mucous tissue there is prostration of strength, and discharge of mucus, variously colored, or otherwise changed, with little or no pain. Extending to the muscular coat, tormina and tenesmus are induced, and the darting, lancinating pain must be ascribed to an extension to the peritoneal coat. The skin being robbed of its fair proportion of excitement by the irritation of the interior becomes cold and collapsed until reaction takes place. Yet it finally relapses, when the case does not proceed well into its former condition. The sympathetic fever is sometimes intermittent, though often remittent or continued.

Symptoms.—An attack in warm weather is usually introduced by anorexia, epigastric fullness, furred tongue, thirst, bitter taste, nausea and sometimes vomiting, uneasiness in the abdomen, dry skin, muscular soreness and debility, or it is introduced directly by a chill and fever.

After the constitutional disturbance, follow griping and a propensity to go to stool; large feculent or watery discharges for a time, then small ones, consisting of mucus only, or tinged with blood; a sense of weight or dragging in the lower part of the abdomen, and either fugitive pain or permanent tenderness. But often the local affection supervenes first, and the system may sympathize very little throughout the case—certainly not to the extent of a fever. In a still more advanced stage we have stools more frequent and painful, every evacuation being attended with an aggravation of symptoms, violent straining, and a good deal of rumbling from flatulence.

Occasional prolapsus of the intestine. The discharges sometimes become like cheese, or they may be purely hemorrhagic. Again, there may be evacuated a substance like flesh, composed of coagulated lymph, or impacted mucus red-dened with blood, or matter resembling the mucous coat of the bowels.

The scybalæ which are in some instances discharged, consist of hardened balls of fæces. Little or no bile is ever apparent in the stools. Although there be fever, the pulse is seldom full or active, however tense and corded it may be. In the final stage there is depression of strength, cold skin, sometimes petechiæ, great soreness and tension of the epigastrium, feeble pulse, a singularly altered and often corpse-like countenance.

These symptoms may be varied by a concentration of the disease in a particular section of the bowels, or a particular coat, or by the complication of other affections.

Causes.—Miasmata, an excess of heat, sudden variations of temperature; a damp, heavy, murky atmosphere; a calcareous soil, epidemic influence and checked perspiration, by whatever cause produced.

Certain ingesta, among which may be mentioned crude fruit, and unwholesome vegetables, and particularly putrid or spoiled aliment. A sudden change from an animal to vegetable diet, or the reverse; or from salted to fresh provisions, or the opposite. Acid beverages, stagnant water.

Diagnosis.—The only disease with which dysentery is liable to be confounded is diarrhœa, and here the treatment is so similar that the discrimination is unimportant.

Prognosis.—Cases in which the stools consist almost entirely of blood, are generally more tractable than when the discharges are principally mucous. Colliquative diarrhœa, at an advanced period, very unfavorable; stools of a penetrating and cadaverous smell, a very bad sign. Tympanitis, with small mucous stools, or with fetid sanious discharges from the bowels, highly unfavorable. A small, frequent pulse, with a sunken and cadaverous countenance, hiccough, and cold extremities, indicate a fatal termination. Bile appearing in the stools is a favorable sign.

Post Mortem.—Very similar to those already described as belonging to enteritis. The lesions are chiefly seated in the mucous coat of the large intestines, and, above all, the colon. The other coats are comparatively little affected. In hot countries most of the abdominal viscera are apt to share in the disease. The liver is especially apt to be congested, and may be structurally affected.

Treatment.—To meet these indications, when we have reason to suspect the stomach is loaded with irritating substances, we should give an emetic of the lobelia comp., follow with alcoholic vapor bath, and then give:

R—Epsom Salts	aa.
Magnesia	q. s.

Mix.—Give a tablespoonful once in three hours, until a mild purgative effect is had, then follow with:

R—Syr. Rhei et Potass	ss iij.
Fld. Ext. Geranium Mac.	ss i.
“ “ Asclepias	aa.
“ “ Serpentaria	ss ss.

Dose.—One teaspoonful every two hours.

We may alternate with :

R—Tr. Capsicum.....	} aa.
Fld. Ext. Populus	
	} 3 ss.

Dose.—Twenty drops once in two hours.

Locally we would apply some stimulating poultice or warm fomentations over the stomach and bowels. Dysentery is always attended with an arrest of the functions of the skin, and we should direct our efforts to bring about a termination to the surface. The above plan of treatment will be found effectual in every case. The practice of giving opium astringent to dry up the secretion is founded on error and attended with poor success. When, we have great pain, cramping, etc., we may resort to the fld. ext. of humulus or lactuca to relieve urgent symptoms.

CONGESTIVE, OR TYPHOID DYSENTERY.

Pathology.—The peculiarity evidently consists in there being, instead of an actively inflammatory state, a congestive condition, with a tendency to rapid disorganization.

Symptoms.—The most prominent feature of this form is a want of reaction. The skin continues cold, damp and mottled, or, as may happen, partially dry and heated; the tongue loaded and dark; and there is much gastric, and occasionally some cerebral disorder. Contracted under peculiar circumstances the disease has received a modification partaking of the nature of scurvy. To many of the symptoms already detailed, are here added soft, spongy, livid gums occasionally so ulcerated that the teeth become loose and fall out; the lips and mouth are livid, and the breath fœtid; while, more or less, over the whole body, though particularly on the extremities, large blue or purple spots are dispersed.

Causes.—The congestive species of the affection is principally met with in crowded, ill-ventilated places, as in ships, hospitals, prisons, besieged towns, and camps. The cause to which, when thus appearing, it is generally assigned, is contagion. The effluvium is by some supposed to spring *immediately* from the excrementitious discharges, while others suppose it to be the product of their putrifaction. There seems to be, however, no substantial demonstration of the truth of either of these theories. The probability is that typhoid dysentery is the result of a contaminated atmosphere, acting at a time when there is a predisposition to dysenteric disease.

Other causes are epidemic influences, and those causes already enumerated, as productive of the inflammatory variety.

Prognosis.—Sometimes extremely intractable and fatal.

Post Mortem.—Generally, in the place of the marks of active inflammation we meet with turgescency of the vessels of the intestines, with ecchymosis and softening of the mucous tissue, and perhaps gangrene of all the coats. Various other abdominal viscera are frequently involved, and sometimes the brain.

Treatment.—A low collapsed state existing, the skin is to be excited by alcoholic vapor bath. stimulating friction, etc.

Emetics are well suited to this form, even when the stomach is not loaded with irritating contents.

Then follow with :

R—Tr. Capsicum	aa.
Fld. Ext. Xanthoxylum.	—
“ “ Serpentina.....	3 ss.

Dose.—Thirty drops once in three hours.

Also the sulphate of quinia, charcoal to correct the fœtor ; the nitric or nitromuriatic acid in the scorbutic variety, warm applications over stomach and bowels. Other remedies may be used to meet the case.

The diet, in the early stage should be like that in the inflammatory form ; but when debility of the vital forces has supervened, to the farinacious articles may be added wine, milk punch, chicken, mutton, or beef tea. An intermittent is sometimes conjoined with dysentery. The best plan here is to neglect the former until the latter is reduced. The same principle holds in the complication of dysentery with rheumatism, and some other diseases. But it is here supposed that the bowel affection is strictly inflammatory. In the low forms the quinine might be adapted to both complaints.

DIARRHŒA.

If the absorbing powers of the intestines are defective, the consequences are excess in the quantity of matter that passes through them. That which ought to be taken up is carried along, and constitutes a diarrhœa. It may depend on a variety of causes, as a relaxed condition of the bowels, improper diet, unripe fruit, hard, indigestible substances taken into the stomach. We may divide the disease according to the appearance of the discharge. We have several varieties, first of which is :

FECULENT DIARRHŒA.

This usually results from over-feeding in children, and over-eating in grown people. The prominent symptoms of this form of diarrhœa is looseness of the bowels, with or without griping pain ; frequent discharge of thin, watery matter, undigested food, usually of an acid nature. This condition is accompanied by partial or complete loss of appetite, pain in the stomach, swelling and tenderness in the lower part of the abdomen. We may have nausea and vomiting, urine scanty, etc. The discharges are painful usually, though sometimes without pain. We may have mucous or purulent discharge.

Causes.—The cause of this form of diarrhœa is either dentition or worms, and is sometimes due to irritating food in the stomach. I will also mention sudden changes of temperature as among the causes. If the diarrhœa depends upon dentition, we must treat the case as directed under that head.

Treatment.—Give the neutralizing cordial three or four times a day in tea-

spoonful dose. Give leptandrin in small dose, say one-half grain once a day. Salt water baths daily, with warmth to the spine and bowels. The diet is an important element, and should be carefully attended to. We must have something to supply nutrition without taxing the digestive organs. Milk and lime-water is excellent, arrow root, corn starch with nutmeg, rice flour, Irish potatoes, etc., are among the best articles.

BILIOUS DIARRHŒA.

This is the next simplest form of diarrhœa. We have a large amount of bile thrown off from the biliary ducts without corresponding absorption, and this of course adds largely to the amount of matter thrown off. This condition may be brought about by cold, mental emotion, irritation, and from want of action in the secreting system. Persons of a bilious or phlegmatic temperament, are more subject to it than any other class. In such patients we sometimes have the bile deficient and then again poured out to excess. Irritation of the stomach or intestine that leads from the stomach, causes the bile to be retained in the liver and gall bladder until it is unfit for absorption.

Symptoms.—We can always detect bilious diarrhœa by the peculiar odor and look of putrescence of undigested matter. If the discharge is mucous and mixed with blood, we recommend in the treatment, an occasional dose of one-half grain of podophyllin and twenty-five drops of dilute nitro-muriatic acid.

SEROUS DIARRHŒA.

Aqueous or watery discharges—profuse, constant, and exhausting. It comes from an excessive accumulation and want of absorption. In this form of diarrhœa we have a sort of congestion of the vessels or veins that supply the intestines. We have deficient vitality in the mucous membrane, and finally ulceration of the bowels.

Treatment.—In treating this form we must have an eye to the diet. Apply stimulating liniment to the bowels, keep the patient in bed, and we give in connection:

R—Comp Tinct. Cinchona ̄ i.
Nitro-muriatic Acid Dil..... ̄ ii.

Mix and give thirty drops three or four times a day. Alternate with:

R—Fld. Ext. Geranium Mac } aa.
“ “ Myrica Cer..... } ̄ ii.

Dose.—Twenty-five drops every two hours. Nux vomica acts well; ten drops of the tincture three times a day. It acts as a nerve stimulant to the bowels, and is advisable where there is nervous depression and weakness.

MUCO-PURULENT DIARRHŒA.

In this form we have, in addition to the watery form, particles of mucus mixed with the stool, and a shred-like substance (fibre) and similar flake-like blood globules, the peculiar lining membrane of the bowels. The discharge partakes of an alkaline nature.

Treatment.—We should treat with the nitro-muriatic acid and tonics, among which we shall find none act better than prunus vir. The stools become putrid, and to correct that, we might give an occasional dose of prepared charcoal.

CHRONIC DIARRHŒA.

Either form of the above may produce chronic diarrhœa, if long neglected, and this is too well marked to need an extended description. I have rarely failed to cure chronic diarrhœa, and the following is my first prescription :

℞—Fld. Ext. Populus Trem		
“ “ Prunus Vir		
“ “ Geranium Mac		aa.
“ “ Myrica Cer		3 i.
“ “ Hamamelis		
French Brandy	0	ss.
Syr. Simplex	0	ss.

Mix.—Dose.—One-half wine glass before each meal.

℞—Tr. Nux Vomica		aa.
“ Sanguinaria		
Fld. Ext. Dioscorea		3 ss.

Mix.—Dose.—Twenty-five drops after each meal. Bathe the bowels with some stimulating liniment. Under this treatment, and a generous, nutritious diet, improvement is rapid.

CHOLERA MORBUS.

Frequent and violent discharges of bilious matter from the stomach and bowels, with painful gripings, constitute cholera morbus. In our climate it is met with in all seasons of the year, although it is more apt to prevail in the summer and autumn when there is excessive heat, or sudden transitions from heat to cold ; and the violence of the disease has usually been observed to be greater in proportion to the intensity of the heat. These and other circumstances lead us naturally to conclude that cholera morbus is the effect of a warm atmosphere, producing some change on the eight pairs of nerves which supply the liver and biliary duct, which change consists either in the matter of bile being rendered more acrid, or acid, or of its being secreted in a preternatural quantity. In some instances the disease can be clearly traced to obstructed perspiration, from food that has become acid upon the stomach, or has passed into the acetous fermentation, as unripe fruit, torpor of the liver, obstruction of the bile duct, predisposed to by nervous prostration.

Symptoms.—It usually comes on with nausea, soreness, pain, flatulency in the stomach, acute griping pains in the bowels, succeeded by intense and frequent vomiting, and purging of bilious matter, heat, thirst, hurried respiration, and a frequent but weak and fluttering pulse. When the disease is not violent, these symptoms after continuing for a day or two, gradually cease, leaving the patient in a debilitated or exhausted condition ; but when the disease proceeds with great violence, there arises great depression of strength, cold, clammy sweats, considerable anxiety, a hurried and short respiration, cramps in the

legs, coldness of the extremities, and other symptoms of sinking, with an intermitting pulse, which quickly terminates in death.

Diagnosis.—Cholera morbus is to be distinguished from diarrhœa and dysentery by the matter which is discharged being pure bile, unmixed with blood and mucous, and scarcely any fæces. It may be distinguished from colica pictonum by the evacuations; for in the latter there is always a considerable quantity of bilious matter ejected by vomiting; still the bowels remain obstinately costive.

Prognosis.—This must be unfavorable when the evacuations upwards and downwards are accompanied by great prostration of strength, tympanitic abdomen, intermitting pulse, cold, clammy sweats, hurried respiration, hiccough, spasm of the extremities, or convulsions, but a gradual diminution of the symptoms, especially vomiting, succeeded by sleep or a gentle moisture of the skin may be regarded in a favorable light.

Treatment.—From the very irritable state of the stomach in the first attack of the disease, it is almost impossible for any kind of medicine to be retained on it—every thing being rejected the moment it is swallowed. To relieve this irritation, and evacuate the redundant acrid bile give an emetic of the compound of lobelia and follow this with thirty grains of the bicarbonate of soda. After emesis has been thorough, give :

R—Fld. Ext. Xanthoxylum.....	}	aa.
" Zingiber.....		
Tr. Capsicum.....	}	§ i.

Dose.—Half teaspoonful in sugar and water, and repeat every fifteen minutes until warmth is experienced and cramp is relieved. In addition to these means stimulating applications should be made over the region of the stomach, and indeed over the entire abdomen; first sinapisms, then fomentations. Warmth should also be applied to the extremities; first the mustard foot-bath, then artificial heat.

If prostration is extreme, wrap the patient up in a blanket saturated with mustard, and give stimulants. I have found the following also to be effectual :

R—Syr. Rhei. et Potass.....	}	aa.
Tr. Xanthoxylum.....		
" Leptandria.....	}	§ i.

Mix.—Dose.—Half a teaspoonful every twenty minutes till the patient is relieved. If this does not quickly succeed alternate with :

R—Tr. Capsicum.....	}	aa.
Ess. Peppermint.....		
Spt Camphor.....	}	§ i.
Fld. Ext. Papaver.....		
Syr. Simplex.....	}	§ iv.

Dose.—One teaspoonful in water every half hour. The lungs and liver are the great decarbonizing organs of the body. The lungs are most active in cold weather, from the part they perform in generating animal heat. In summer the liver is stimulated by the heat to increased action, and forms a large quantity of bile, which is required to perform important uses in the function of digestion. In order to have a perfect state of health these organs must be in perfect harmony; for if we have entire suppression of the function of

the liver, we immediately have extreme congestion of the liver, stomach and intestines.

This condition always leads to increased sensibility and this leads to vomiting. The most efficacious remedies in the treatment, after arresting the vomiting, are small doses of capsicum.

The latter agent may often be relied upon when the vomiting is extreme. In all cases astringents are contra indicated as they aggravate the complaint by retaining vitiated bile in the intestines, which ought to be discharged as long as the morbid secretion from the liver continues. As the debility is usually very great, it is proper, as soon as the intensity of the disease is allayed, to begin with tonics and nourishment.

For this purpose, hydrastis, cinchona, etc., will answer well, and the diet nutritious, easily digested, such as beef tea, white of eggs, etc.

CHOLERA INFANTUM.

This disease of children is, perhaps, peculiar to the United States.

The period of its greatest prevalence is between the ages of twelve and eighteen months. It mostly begins among us in July and continues till the accession of frost. It may, from its destructiveness, be called the scourge of children. Its popular name is the *Summer Complaint*.

Pathology.—The disease in its most familiar presentation, is a gastro-enteric affection, soon involving the liver. The excitement of the stomach and intestines, being communicated to the liver, produces at first an increased flow of bile; but the liver being long subjected to this high action, becomes exhausted, and its secretory power suspended. But in other cases the inceptive impression is so strong that the secretion of bile is at once arrested. The brain, and system in general, become soon involved in the play of sympathies.

Symptoms.—It may approach like a dysentery, though sometimes its commencement more nearly resembles a cholera morbus. Its most common and characteristic presentation, however, is that of gastro-enteritis, in every gradation of violence, from simple irritation to the most intense inflammation. Cerebral effusion is sometimes early manifested in a tendency to delirium or stupor. The fever, when confirmed, is of an irregular, remittent type. The desire for drinks is now unquenchable.

The evacuations are watery, or slimy or mucoid, or like coffee grounds, or deep green, or of a colorless fluid, leaving a pink margin around the soiled portion of the napkin.

They have usually a sour or putrid odor. Great irritability of the alimentary canal existing, the ingesta pass off immediately.

When the attack runs a lengthened course, few diseases exhibit more emaciation, or greater alteration of condition and aspect. The alvine discharge sometimes at this period amount to forty or fifty in twenty-four hours.

Towards death the face and belly may become bloated, the feet œdematous and the mouth sprinkled with aphthæ. The mental faculties and senses are ap

to become extremely torpid. This protracted form of the disease may continue five or six weeks.

Causes.—Exclusively incident to children, and almost so to those living in cities. Damp, murky weather is favorable to the origination of the disease. Exciting causes are improprieties in diet or clothing, teething, worms and premature weaning.

Diagnosis.—The affection may in general be easily recognized.

Should it be confounded with diarrhœa, dysentery, or cholera morbus, it will probably, in such cases, be essentially the same with these diseases, and require the same treatment. Even when mistaken for the common irritation of teething, the treatment is so analogous that nicety of discrimination is not required.

Prognosis.—A prognosis is very hazardous, since the most favorable looking cases are apt to terminate fatally, and *vice versa*.

The chances, however, are vastly greater, other things being equal, when a free ventilation is commanded. The appearance of dark, bilious or natural stools is a most propitious sign. Among other unfavorable signs, too obvious in their character to be here mentioned, may be stated the purging of a pink colored fluid, or the fluid which leaves a pink stain around the soiled parts of the napkin. This is an almost certain indication of death.

Post Mortem.—The brain in recent cases presents only slight venous congestion, or where cerebral excitement has existed, inflammation of the membranes. But in protracted cases effusions are often observable. In the alimentary canal, especially the upper part, we have the evidence of inflammation, often contortion and intussusceptions of the intestines. The peritoneum may exhibit a morbid appearance and effusion in its cavity. The liver, in cases of long continuance, is in some instances so much hypertrophied as to occupy two-thirds of the abdominal cavity. On the contrary it has appeared atrophied, and the spleen correspondingly augmented.

Treatment.—In the early stage begin treatment with a stimulating emetic, say Ipecacua comp. Then follow with a warm bath, stimulating friction over the abdomen. If the vomiting is persistent, give :

R—Syr. Rhei et Potass	℥ ii.
Tr. Cimicifuga	℥ i.

Dose.—One teaspoonful every two hours.

After the urgent symptoms are controlled, put the patient upon syr. hypophosphite comp., one-half to a teaspoonful, three or four times a day. Flannel next the skin, warm salt-water baths daily, and when vomiting is persistent, a spice plaster over the stomach. All the way through give the syr. rhei et potass. in small doses. Avoid all the domestic nostrums—Godfrey's cordial, chalk mixture, etc.

In the early stage, when there is much gastric disturbance, milk is apt to form tough clots and severely aggravate the inflammation. The mucilaginous drinks should therefore be substituted. But when this acid condition of the stomach subsides, then nothing is so well adapted as the mother's milk. At a later

period, sago, tapioca, and other farinacious articles, may be preferable. Extreme debility supervening, a little raw meat juice or beef tea may be allowed.

CHOLERA.

Asiatic or epidemic cholera, originates in a peculiar, specific poisoning. This poison may be conveyed to a great distance by the wind, and be absorbed in the form of particles or atoms, which when inhaled or taken up by the absorbents, are capable of producing specific effects. This is one of the most terrible epidemics visited upon the human race of this day in the civilized world, and the very fact of its fatality adds to its effects upon many persons. The poison seems to operate upon the nervous system, brain and spinal cord. This is proved by the prostration, coldness and livid appearance of the surface; also we have vomiting, purging and suppression of urine, cramps of the abdominal muscles, cold extremities, and cramping in the limbs, sometimes preceded by diarrhœa, but more frequently comes on without premonition.

Symptoms.—The symptoms of the disease, though it runs its course in a short time presents three stages :

1. Countenance pale, irritability, languor, sleepiness, confusion of head, stomach deranged, nausea, vomiting, diarrhœal discharge. These are symptoms or evidence that nature is endeavoring to throw off some morbid poison from the blood, and, if aided at this stage, we should never have the second.

2. In which we have an aggravation of all in the first. Constant diarrhœa, discharge light colored, assumes a serous, or white, flaky and rice water appearance; the pupil is contracted and we have cramps, spasms, cold body, intermittent pulse. This stage lasts from two to forty-eight hours. Then we have the third.

3. Attended by suppression of urine, prostration, collapse and death.

The general symptoms of these three stages, in detail, may be summed up as copious vomiting, excessive and increasing diarrhœa—without pain—a watery discharge with particles resembling small flakes of skin, or a rice water discharge. We shall find upon analysis, large proportions of albumen and the component parts of the blood—iron, chloride of soda, important elements which are being drained out of the system. Cramp becomes more frequent and severe, drawing the muscles into cord-like masses. Pulse soft and quick—110 to 120. The skin inelastic, cold, dry, smooth, leaden-colored; temperature 65 to 70 deg.—skin assumes almost a bluish aspect. The expression of the features is ghastly, eyeballs sunken, cold, clammy sweats, eyes glassy and vacant, tongue cold, also the breath; mucous membrane of the mouth assumes a cold, bluish appearance. Distress in the stomach, unquenchable thirst, burning at the upper part of the abdomen, urine suppressed, as also all other secretions; spasms attack the heart, its vessels, and ramifications; also, the respiratory and whole circulatory system. The nervous system becomes easily excited and we have a husky voice, whispering, and shrinking of the whole body, pinched features, contracted pupils. These symptoms continuing, the breathing be-

comes less frequent; the rough, hoarse and husky voice, becomes spasmodic, jerking out each word; the pulse becomes thread-like and intermitting; circulation arrested and lungs become paralyzed. Should the patient survive forty-eight hours and show signs of improvement, he may recover rapidly; this we will feel assured of if the pulse rise; the stools assume a more healthy form and respiration and circulation grow better. Improvement may be only transient, and we have continued suppression of urine, contraction of pupil and death is preceded by intense spasmodic contraction, vomiting, shortness of breath, coma.

In more favorable cases we have a sort of fever, follows gradually, subsiding in a few days, or the fever may assume a more severe type, giving rise to a low, collapsed condition of the patient, a contracted pupil, a thread-like pulse, and suppression of secretions, finally ending in death.

The symptoms and pathology of this disease prove conclusively that the poison operates directly upon the spinal cord. This is fully demonstrated in the dissecting room, for in every case the spinal cord will be found highly inflamed and congested, or entirely surrounded and compressed with pus.

Diagnosis.—The diagnostic marks are well defined, copious secretions and accumulations in the stomach and bowels of a serous fluid, albuminous in its character, free from acid or alkalies, and having more the appearance of rice water than anything else. This fluid is discharged from the mouth and bowels without effort. We have from the beginning an arrest of all the natural secretions and excreta, as tears, bile, saliva, fæces, urine, perspiration, etc. The skin becomes cold and void of elasticity, appears wrinkled, and assumes a leaden color, mucous membrane presents similar appearance, tongue and breath cold. The muscles are in a state of tonic or constant spasm—especially is this true of the lower extremities. The specific poison is a minute particle generated from animal matter during some peculiar condition of the atmosphere, and operates upon constitutions impaired by some depressing influence; hence those who become despondent at its approach fall its first victims.

Treatment.—During the prevalence of cholera in Philadelphia, some years ago, the superiority of the American practice over that of the old school, was fully demonstrated—in fact there is not an instance on record where such success attended the treatment of cholera as did our school then. When this epidemic prevails a high standard of health should be maintained, individually and collectively. All green fruits and vegetables, hard or indigestible articles of diet, should be scrupulously avoided. No uncleanness of premises and the most rigid bathing and washing of the person; no intemperance, or fatigue, or over-exertion; no breathing of vitiated air; pure water; the most nutritious and wholesome diet.

Upon the slightest appearance of nausea, vomiting or diarrhœa, give the neutralizing mixture, one tablespoonful with leptandrin two grains, and ten drops of fluid ext. xanthoxylum, every half hour till relieved.

Should the slightest indisposition exist, give the neutralizing mixture, with the leptandrin.

Perfect rest in the recumbent position is advisable. Apply capsicum and vinegar to the abdomen, proportioned as follows :

<i>R.</i> —Pul. Cayenne Pepper.....	℥ i.
Table Salt.....	℥ ii.
Vinegar.....	O i.

Give, as a drink, the infusion of bark of white mulberry, or slippery elm, and bayberry, thus :

<i>R.</i> —Baberry (bark of root).....	℥ ii.
Slippery Elm.....	℥ ss.
Aqua.....	O i.

Dose.—One wineglassful every two hours.

Plain, nutritious diet is of the greatest importance, as, also, perfect rest. If we have the disease fairly set in we should place the patient in the most comfortable part of the building, have an equitable temperature, say 80 deg., Fah. The diarrhœa and vomiting being but natural efforts to rid the system of the poison. A good plan will be to give a stimulating emetic, as :

<i>R.</i> —Pul. Green Lobelia.....	℥ ii.
" Bayberry.....	℥ ii.
" Capsicum.....	℥ ss.

Mix.—Steep in a pint of boiling water, and give a teaspoonful every fifteen minutes until the patient vomits freely. Then follow with the neutralizing mixture, leptandrin and bayberry, as directed before.

Get up a healthy secretion of the liver ; perfect rest. Apply the pepper sauce to stomach and abdomen, and apply oil of turpentine on each side of the spine. Opium, in any form, is to be strictly prohibited, as it tends to increase the congestion of the spinal cord. The following is of great value in the early stage :

<i>R.</i> —Fld. Ext. Papaver.....	℥ i.
Aqua.....	℥ iv.

Mix., and give a tablespoonful, with sugar and water, twice a day.

Should the pupil continue contracted, and cramp, or spasm be threatening, give the following :

<i>R.</i> —Tinc. Lobelia.....	} aa.
" Capsicum.....	
" Cypripedium.....	
" Lactuca.....	
	℥ i.

Dose.—One teaspoonful in wineglass of water every half hour.

Should there be evidence of sinking, give one drop of oil of capsicum in sweetened water. Keep the counter-irritants applied to the spine.

Give well-salted meat juice, relieve the thirst with iced champagne.

When vomiting is incessant, both medicine and drink may be given every few minutes. If there is much heat or burning, we might give the sulphite of soda, with good effect. Maintain the recumbent position.

Keep down the spasm with the remedies indicated, keep up a normal heat with hot sand bags, hot bricks, etc. Keep the bed away from the wall ; put pieces of glass under the bedstead legs, or rollers, and keep the air pure in the apartment, by removing all excreta as fast as possible, and use chloride of lime about the room as a disinfectant.

Convalescence should be established on mineral acids, etc.

Acid nitro-muriatic, dil., twenty drops in water three times a day, with cinchona comp., after meals. Shower baths and counter-irritants should be continued. Many of these suggestions will hold good in severe forms of cholera morbus or dysentery. Did we pay more attention to hygienic laws, we should have less of disease, especially of summer bowel derangements.

COLICA, OR COLIC.

FLATULENT COLIC.

Much of what is said of this form, equally applies to the two others.

Pathology.—The disease may be seated in any portion of the alimentary canal, though its principal location is about the ileo-cæcal valve. Commencing in simple spasm of the muscular coat, it invariably terminates if long continued in inflammation. This may be confined to the muscular tissue, or it may involve the others.

The pain has been generally attributed to spasm, but more correctly to the flatulent distension.

The immense formations of gas are ascribeable in some instances to the decomposition of the intestinal contents, and in others to its secretion by the mucous membrane.

Symptoms.—Sickness of stomach, spasmodic pains, flatulent distension, rumbling, twisting around the naval, and occasionally cramps of the abdominal muscles, and of those of the lower extremities, and unrelenting constipation. The vomiting is sometimes violent, the substance discharged may finally be stercoraceous. The pulse, at first little changed, soon becomes feeble and the surface cold. Should inflammation occur, the pulse is hard and corded, the temperature of the body very unequal, and the abdomen tender.

If relief be not afforded, this state is succeeded by a return of the diminutive pulse, cold, damp skin, abatement, or cessation of the pain, a haggard countenance, singultus, and the other signs of approaching dissolution.

Causes.—Indigestible articles of food, the vinous or alcoholic liquors, collections of indurated fæces. Exposure to cold, and particularly when followed by a meal during the chill.

Sympathy with distant parts. Lesions of the spinal marrow. The stomach and intestines sometimes acquire an extraordinary irritability.

Diagnosis.—To distinguish the stercoracious vomiting proceeding from an intussusception of the intestine, from that proceeding from an inverted peristaltic action without an intussusception, is impossible.

Colic is diagnosticated from enteritis by the paroxysmal and spasmodic nature of the pain, the relief at first afforded on pressure, and by the flatulence and correspondent intumescence. But to hernia it is very analogous, both in the early and late stages. In doubtful cases, an examination should always be made.

Prognosis.—Colic is for the most part easily managed. The ejection of ster-
coraceous matter is an almost fatal sign.

Post Mortem.—The intestine distended with flatus, ingesta, or fæces. It is
sometimes alternately contracted and dilated, exhibiting a series of pouches.

The case being of long continuance with manifestation of spasm we meet
with the marks of inflammation and occasionally with intussusceptions. The
last are sometimes accompanied with gangrene, though more generally by no
lesion whatever.

Many of them are probably formed at the point of death. They occur
chiefly in the ileum. The upper is mostly received into the lower portion, knots
in the intestine are also sometimes formed. The stomach occasionally par-
ticipates in the spasm, and it, together with the parietal peritoneum and liver,
may be found in a state of inflammation.

Treatment.—The indications of cure are to relax spasm and restore the
peristaltic action. Warm water is a valuable remedy, warm fomentations,
enemas of warm water.

The warm bath is worthy of the most scrupulous attention, and should never
be lost sight of, to relax abdominal spasm. The soothing effect of warm water
upon the nervous system, when in a state of unnatural erethism, is too valuable
to be neglected.

Whatever may be the form of colic, give :

R—Fld. Ext. Lobelia.....	aa.
“ “ Dioscorea.....	
“ “ Asclepias.....	§ i.

Dose.—Half teaspoonful in warm water, and repeat every fifteen minutes
until free emesis. Follow with anti-spasmodic mixture :

R—Tr. Lobelia.....	§ ii.
“ Capsicum.....	aa.
“ Cypripedium.....	
“ Scutellaria.....	§ ii.

Dose.—One teaspoonful in a tablespoonful of water, and give a mild saline
purgative—seidlitz powder will meet the indications fully.

BILIOUS COLIC.

Pathology.—The chief point of dispute is, whether the liver is preternaturally
excited, or depressed into torpor. There is, however, every reason to believe
that in the advanced stage it becomes torpid. The nervous and cerebral dis-
turbance may be either original or secondary.

Symptoms.—The attack is occasionally preceded by the evidences of hepatic
derangement. At other times it comes on with a chill followed by fever, at-
tended with more or less perturbation of the alimentary canal, characteristic of
colic. But it is as frequently introduced by violent vomitings. Bile is rarely
thrown up in the commencement; is thrown up very copiously after a while,
and ceases at a still more advanced period, owing to a torpor of the liver from
over-excitement. The retching, however, still continues. Whatever may have
been the mode of commencement, the pulse gradually rises till it acquires much
force and volume.

Sometimes, when the aggression is very violent, no reaction takes place, and the collapse may be as complete as that in malignant cholera. Excruciating pain about the umbilicus, acute or dull pain in the head, and often depravation of vision, mind occasionally affected, and at times nervous tremors, or paralysis of the upper extremities.

Causes.—The cause is autumnal fever, irritating ingesta, and spasmodic influence.

Diagnosis.—Distinguish from other colic principally by the biliary derangement, and the fullness and activity of the pulse.

Prognosis.—Pretty much like that of flatulent colic. Very favorable is the reappearance of bile after its suppression, and most unfavorable, of course, is the want of reaction.

Post Mortem.—Much like that of flatulent colic. The liver is disordered, particularly by congestion. The stomach and intestines are more affected by inflammation than in the other variety.

Treatment.—In this form colic will not differ materially from that of flatulent colic. If in children, give :

℞—Neutralizing Mixture.....	5 ii.
Oil Anise.....	aa.
Ess. Peppermint.....	gtts. x.

Mix, and give at a dose. In bilious colic in adults, in addition to the lobelia comp., as directed under the head of flatulent colic, we should give :

℞—Podophyllin.....	grs. ii.
Bitartrate Potass.....	5 i.

Give in a wine glass of cayenne pepper infusion.

LEAD COLIC.

Pathology.—Rather uncertain. The best opinion at present seems to be that the disease is a modified neuralgia, particularly of the spinal and sympathetic nerves, the irritation of which when intense and enduring, sometimes leads to inflammation.

Symptoms.—Coming on gradually, nothing may at first be complained of, except a general feeling of wretchedness, uneasiness in the epigastrium and right hypochondrium, indigestion, and constipation. Or without these premonitions, the disease may at once commence with pain at the pit of the stomach, descending to the intestines, a twisting sensation around the navel, nausea, obstinate constipation, and frequent though ineffectual desires to go to stool. The pain soon increases in violence, and the abdomen becomes exquisitely tender. The muscles of the abdomen and the lower limbs contract in hard knots, and there is incessant vomiting. Some cases much resemble dysentery. In most instances, paralytic affections supervene. It scarcely ever lasts less than five days and may continue for months.

When the disease becomes decidedly chronic, the nutritive process is greatly vitiated, emaciation ensues, the countenance is sallow or leaden, the secretions are diminished, and the mind is very irritable, or imbecile, and thus the affec-

tion proceeds, until usually it settles down into invincible palsy of the inferior though oftener of the upper extremities. It may also terminate in mania epilepsy, loss of some of the senses, or dropsy.

Causes.—The internal use of the preparations of lead, or an external exposure to them. Thus persons have contracted the disease from eating things contained in a leaden or glazed jar, from drinking liquors impregnated with some saturnine preparation, possibly, in some instances, from drinking water which had been conducted through leaden pipes, from living in the vicinity of lead works, or even from living in rooms recently painted. It is ascertained that the carbonic acid commonly contained in water, will act upon the pure metal.

The affection which has been ascribed to some other metals, and also the causes are already detailed as productive of the other kinds of colic. But it is probable that in the instances in which this reference was made there was either some unthought of exposure to lead, or the disease was really bilious colic. The use of canned fruit, tomatoes, etc., put up in cheap tins in which lead enters into the composition, is a fruitful source of lead colic.

Diagnosis.—Distinguished from bilious colic by the unexcited condition of the pulse, the absence of very marked biliary disorder, the tendency to paralysis, and the mode of origin, and blue or purplish hue of the gums.

Prognosis.—The cure is readily effected in recent cases, but old and complicated ones may be deemed doubtful.

Post Mortem.—The reports of morbid anatomists on this subject are very inconsistent. Paris, Roche and Sanson declare that they found the intestines contracted at several points with a hard, dry matter, the intervals and the mucous membrane reddened, thickened and ulcerated.

Treatment.—In the treatment of lead colic, the first indication is to relieve spasms with lobelia, comp. internally and per rectum, fomentations of the same locally, followed with an active cathartic, a warm bath of sulphuret of potassium, keeping the patient in it over half an hour. Great benefit is derived from this all through the case. Should these means fail the following should be tried :

℞—Sulphate Magnesia.....	5 iss.
Sulphuric Acid, Dil.	5 iii.
Infusion of Wild Yam	5 x.

Mix.—Dose.—Two tablespoonfuls once in three hours.

Just as soon as possible five grain doses of iodide of potassium should be given every three hours, in a tablespoonful of comp. syr. stillingia. This sets the nominal poison free, and causes its rapid elimination by the secretions of the body. A chemical antidote is alum, which has a remarkable property of converting the salts of lead in the body to an innocent sulphate. If the pain is excruciating thirty drops of fluid ext. papaver should be given occasionally.

Occasionally has the application of electricity been useful in palliating the severe symptoms; it is excellent in connection with the sulphuret of potassium baths when the urgency of the attack has been relieved. The best plan is to depend

upon the continued use of iodide of potassium for a free elimination of the poison.

As a prophylactic five grains iodide potass. three times a day in the alterative syrup.

INTESTINAL WORMS.

Various are the opinions concerning the origin and formation of worms in the intestinal canal. It does not appear that they are received from without, because they are never found out of the animal body, and when removed out of the body they speedily die; and lastly, earth worms and such as live in water, do not change their forms when received into the intestinal canal. There are five varieties of intestinal worms.

1. TRICOCEPHALUS DISPAR.

These worms are from an inch and a half to two inches in length. About two thirds of their length is almost as thin as a horse hair, the remaining and posterior part being considerably thicker, and terminating in a rounded extremity. They are found principally in the *cæcum*. They are seldom numerous.

2. ASCARIS VERMICULARIS.

These are exceedingly short—not more than two lines in length, very thin and white. Their usual seat is in the rectum.

3. ASCARIS LUMBRICOIDES.

These worms are from two or three to ten or twelve inches in length, round, of yellowish white, or brownish red color, of nearly a uniform thickness, except at the extremities, which taper to a blunt point. They are from two to three lines in thickness. They inhabit the small intestines chiefly, but occasionally ascend into the stomach.

4. TÆNIA LATA.

This worm often acquires a very great length—from twenty to thirty feet and more; it is from four to six lines in breadth, flat and white, resembling a piece of white tape, and composed of a series of concatenated joints. It inhabits the upper portion of the bowels and stomach. The head is armed with two processes by which the worm attaches itself to the intestines.

5. TÆNIA SOLIUM.

This worm is rarely, if ever, voided whole; it generally passes off in short joints, resembling in some measure the seeds of *gourd*. Pieces, however, upwards of twenty feet of this worm have been voided. The head is small and furnished with four small apertures. It inhabits the small intestines chiefly.

Symptoms.—Countenance pale, lead colored, with occasional transient flushes, eyes dull, pupils dilated with a bluish semicircle around the lower eye-lids, tickling in the nose, tumid upper lip, occasional headache, and humming in the

ears; copious secretions of saliva, tongue slimy or furred, breath foul, variable appetite, being sometimes voracious at others wholly gone; transient pains in the stomach, occasional nausea and vomiting, pains in the abdomen, particularly about the umbilical region, frequent slimy stools, or costiveness, urine turbid, yellowish or milky, abdomen tumid and hard, with emaciation of the other parts of the body, lassitude, irritability of temper.

None of these symptoms, however, are certain indications of the existence of worms in the bowels, the only certain indication being the appearance of them in the evacuations from the bowels or stomach.

The opinion which is expressed by some that worms are harmless in the intestinal canal, is without foundation. It is nevertheless probable that that peculiar condition of the alimentary canal which favors the production of worms is more frequently the cause of mischief than the worms themselves.

Worms give rise to a variety of affections, such as chorea, epilepsy, hydrocephalus, emaciation, *convulsions*, paralysis, and a vast variety of anomalous disorders.

Treatment.—In the treatment of worms, great attention should be paid to the general health, clothing, bathing, diet, hygiene; no pork or saccharine agents allowed. Remedies should be given to astringe the mucous membrane of stomach and bowels, as myrica, geranium and tonics, as comp. tinct. cinchona and nitro-muriatic acid, to promote assimilation. This is important, for when we give remedies either for the destruction or expulsion of the worms, this preliminary treatment prevents their generation. Our remedies should then be directed according to the species of parasites intended to be expelled, and our remedies are either expulsive, destructive, chemical, or mechanical.

For the Ascarides.—Enemas are of the greatest use; an injection of a solution of table salt, myrica, podophyllum, aloes, lime water, and camphor.

INTERNAL TREATMENT.

For the Lumbricoides.—Our best drug is santonine. Santonine and podophyllum, santonine and salacine. In the use of santonine for the chemical destruction of this worm, care should be taken to observe that it is of a pure white color, not yellow; it should be given in small doses, one to two grains at bed-time followed in the morning with a dose of comp. syr. rhubarb and potass. Small doses, as above indicated, are best for children, as santonine in large doses, is very irritating to the liver, besides its action as a vermifuge; it is, perhaps, the most bracing tonic promotor of assimilation in the materia medica.

In tape worm I have found the oil of pumpkin seed, male fern and turpentine, the most admirable combination ever introduced, followed by an active cathartic of podophyllum and leptandria. An infusion or extract of kousso may be used with advantage; kameela is excellent. The following is a good formula for the expulsion of tape worm:

R—Kousso	}	aa.
Kameela		
Pomegranate Root Bark.....		3 i.
Pulv. Ergot.....		3 ii.

Mix.—Add one ounce to half pint of boiling water; when cool, take in two

doses, including sediment and all. Prior to the use of the above, the patient should fast for a day or more. The above prescription rarely fails to cause entire expulsion. The combined agents produce asphyxia of the parasite.

INTESTINAL DISEASE.

Obscure intestinal diseases are apt to baffle even the most skillful physicians, and the symptoms are so near those existing in other diseases, that we are often at a loss to determine or locate them. The diseases of a prominent nature, or well defined symptoms are mentioned under their regular head. We occasionally meet with calcareous deposits in the intestines, and when we do meet with them, they are usually a deposit of lime, soda. When the pains are such as to cause us to suspect this, we should resort to relaxation; give lobelia, sanguinaria, etc., and when sufficiently relaxed, give an active purgative, under which the deposit will be expelled. Obstruction to the free passage of the intestines may arise from a variety of causes—hernia, cancer, tumor in the bowels, stricture, contraction from healing of ulceration after typhoid fever, etc., foreign bodies, concretion, etc.

Symptoms.—Constipation, constant vomiting of mucus, then the contents of the stomach and bowels, followed by prostration and peritoneal inflammation.

Treatment.—Place the patient under the influence of the following:

R—Fld. Ext. Cypripedium ʒ ss.
Tinct. Lobelia... ʒ i.

Dose.—Thirty to sixty drops every two hours. Apply over the abdomen poultices of the herb of belladonna, inject the bowels with warm water, to which add a teaspoonful of tinct. lobelia and twenty drops of fld. ext. papaver. The intestines sometimes get drawn in, one part in over another, like the finger of a glove drawn in; this will cause obstruction and congestion—ulceration and sloughing may ensue.

The treatment recommended above is about all we can do in these cases. The symptoms are intense pain, vomiting, obstinate constipation, discharge of mucus and blood from the bowels.

DISEASES OF THE RECTUM.

The veins of the rectum are very tortuous and numerous, and owing to location, etc., are very subject to disease, due to congestion of vessels. Hemorrhoids are most common, and are usually due to constipation and congestion in the first place. This trouble can be prevented by avoiding constipation on the one hand and drastic purgatives on the other.

Prolapsus of the rectum is sometimes met with and is the result of straining or griping, either from diarrhœa or drastic medicine, and is best corrected by warm water baths with a little hamamelis and myrica in the same. It is most common to children, and is only severe when inflammation results from protrusion.

Stricture of the rectum may be partial or complete ; is always more or less troublesome.

Symptoms.—Constipation, the bowels are evacuated with difficulty, and in small particles.

We have flatulence, pain in the bowels, mucous discharge, stained with blood, and the general health soon fails.

Treatment.—To be successful must be of a mechanical nature, gradual dilatation. Bougies of gutta percha, introduced daily and gradually increasing the size, leaving them in, say half an hour at a time. For spasmodic stricture use injection of fld. ext. lobelia and sanguinaria, twenty drops in a half pint of water.

RECTAL ULCERATION.

This is very often met with as a sequel of chronic or acute dysentery, and may occur in connection with other diseases of the liver, lungs, etc.

Symptoms.—We have a mixture of blood, mucus and purulent matter in each stool ; pain under the sacrum, and pubes during evacuation. Most frequent in women.

Treatment.—Mild aperient to prevent constipation ; cod liver oil, nourishing food, no stimulants, and a tonic course to improve the general health. Keep the parts well cleansed with the solution of permanganate of potassa.

RECTITIS, OR INFLAMMATION OF RECTUM.

This is sometimes met with.

Symptoms.—Heat and pain at the anus, extending under the sacrum ; frequent desire to go to stool, straining without passing anything but mucus or lymph, fearful pain when anything passes.

Treatment.—Use mild injections of glycerine, slippery elm water, and a few drops of lobelia in each syringeful. Apply cold water externally, and give fifteen drops fld. ext. asclepias every two hours.

Chronic rectitis sometimes remains after an acute attack, and may result in fistula, fissure, ulceration, ect., always painful.

Treatment.—Use a mild, unstimulating diet and inject the rectum three times a day with :

R—Sweet Oil..... ℥ ii.
Starch Gruel..... ℥ viii.

Use warm hip bath, and keep your patient quiet.

HEMORRHOIDS.

Piles are met with in two different forms. Blind piles, where there is a well defined tumor, without bleeding. Piles, where the tumor may not be large, yet bleeding profusely.

Both forms, in their primary condition, are due to a varicose condition of the

veins of the rectum, weakness and debility of the sphincter of the rectum in connection with a species of congestion, which involves the whole digestive tract. Varicose condition may bring about this weak or impaired condition of the muscles and vascular structure, surrounding the veins, subsequent relaxation and varicose condition of the vessels. Habitual constipation is one of the most common, exciting causes of hemorrhoids.

Cough, intestinal irritation, hypochondria, neuralgia, dyspepsia, etc., are premonitory symptoms of hemorrhoids, and are directly traceable to constipation.

Drastic purgatives, horseback riding, protracted diarrhœa, continual sitting in one posture, worms, etc., all tend to produce congestion and hemorrhoidal tumors.

External tumors are troublesome, mainly from their bulk, but should they become inflamed or congested, we have backache, uterine irritation, and they have been known to produce lockjaw.

Internal tumors, or piles, are more troublesome, as they interfere with the passage of fecal matter, and sometimes attain a very large, spongy, vascular growth.

We sometimes meet with them in the form of a pendulous tumor, like unto polypus in other parts.

The internal tumor invariably causes trouble, protruding during the action of the bowels, pressing upon the nerves, and producing a sort of paralysis of the muscle, and then we have the tumor, all the time protruding, except when the patient is lying on the back.

The loss of blood is often considerable, and great uneasiness is felt about the rectum, tenesmus, irritation of the bladder, and of the womb in women; discharge of a bloody matter and derangement of all the functions.

Treatment.—We must get rid of the constipation. Dieting here, will often do better than medicine; ripe, wholesome fruit, and the habitual use of cold water, as directed under the head of constipation.

For the hemorrhoidal tumor, or piles, nothing tends more to allay inflammation and irritation than cold water, locally, as an injection, and as a bath to the rectum. The medical treatment will consist in giving the following combination:

R—Tr. Nux Vomica.....	}	aa.
Fld. Ext. Juglans.....		
" " Leptandria.....		
" " Podophyllum.....		3 ss.

Dose.—Twenty drops before each meal and at bedtime; give thirty drops of diluted nitro-muriatic acid half hour after meals. When the bleeding has been extensive and long continued, we would advise the hypophosphites with cinchona, as a general tonic. Locally inject the following:

R—Fld. Ext. Nymphaea.....	5 ss.
Aqua.....	O i.

Inject half night and morning, and use an ointment made as follows:

R—Iodoform.....	grs. xx.
Lard.....	5 i.

Mix, and apply twice daily. The hard rubber pile pipe with discutient ointment in small quantities, will be of advantage where there are internal tumors high up.

The treatment above laid down, will arrest most cases at once, dispensing with all further attention; only confirmed cases of long standing, require an operation.

HERNIA.

Hernia is a generic term, and is used to signify the protrusion of any viscus from its natural cavity—as of the abdomen, chest, etc. Surgeons generally confine it to protrusions of the viscera from the cavity of the abdomen, as they are of the most frequent occurrence, and arise from the bulk of the parts contained in the abdomen, and the relaxation of its parietes.

There are a great variety of herniæ, according to the parts in which they occur, or according to their contents. Herniæ most frequently make their appearance at the groin, the navel, the labium pudendi, and the upper and fore part of the thigh.

Inguinal Hernia is the name when a hernia protrudes at the abdominal ring, and only passes as low as the groin or labium pudendi.

Scrotal Hernia, if the parts descend into the scrotum.

Femoral Hernia, when it takes place below pouparts ligament.

Umbilical Hernia, when the bowels protrude at the navel.

Ventral Hernia, when it occurs at any other promiscuous part of the front abdomen.

Congenital Hernia, is altogether a peculiar case, the description of which will presently be given.

From the contents of hernia, they are said to be either enterocele, epiplocele, or entero-epiplocele.

Enterocele, if a portion of intestine alone forms the contents of the tumor.

Epiplocele, if a piece of omentum only.

Entero-Epiplocele, if both intestine and omentum.

In addition to the terms already explained as connected with the distinction of herniæ, they are likewise said to be reducible, irreducible and strangulated.

Reducible, when the protruded bowels lie quietly in the sac, and admit of readily being put back into the abdomen.

Irreducible, when the protruded bowels suffer no constriction, yet can not be put back, owing to adhesions, or their large size in relation to the aperture through which they have to pass.

Strangulated, signifies one, which not only can not be reduced, but suffers constriction also; so that if a piece of intestine be protruded, the pressure to which it is subjected, stops the passage of its contents towards the anus, excites inflammation of the bowels, and brings on a train of alarming, and often fatal consequences.

Having cursorily gone through the definition of hernia, we shall now treat of

the causes, the symptoms, and prognosis of hernia, the treatment of reducible hernia in general, then of the irreducible, afterwards of the strangulated, and finally of the individual cases.

Symptoms.—The common symptoms of a hernia which is reducible and free from strangulations, is an indolent tumor at some point of the abdomen, either making its appearance suddenly, or gradually preceded and accompanied by a train of symptoms.

The swelling is subject to a change of size, being smaller when the patient lies down on his back, and larger when he stands up and holds his breath. It frequently diminishes when pressed and grows larger again when the pressure is removed. Its size and tenderness often increase after a meal, or when the patient is flatulent. Sometimes the functions of the viscera seem to suffer little or no interruption; at other times, in consequence of the unnatural situation of the bowels, many patients with hernia are occasionally troubled with colic, constipation and vomiting.

If the case be an *enterocele*, or intestinal hernia, it is generally characterized by the uniformity of its surface; its elasticity and other symptoms depending on the state of the parts. When the portion of intestine is small, the tumor is small in proportion; but though small, if the intestine be distended with wind, inflamed, or have any degree of stricture made on it, it will be tense, resist the impression of the finger, and give pain on being handled. On the contrary, if there be no stricture, and the intestines suffer no degree of inflammation, let the prolapsed piece be of what length it may and the tumor of whatever size, and the tension will be little, and no pain will attend the handling of it; upon the patient's coughing, it will feel as if it were blown into; and in general, it will be found very reducible. A gurgling noise is often made when the bowel is ascending.

If the hernia is an *epiplocele*, or one of the omental kind, the case is equally characterized. The tumor has a more flabby and a more unequal feel, it is in general, perfectly indolent, is more compressible, and if in the scrotum, is more oblong and less round, than the swelling occasioned in the same situation by an intestinal hernia, and if the quantity be large and the patient an adult, it is in some measure distinguishable by its greater weight.

If the case is an *entero-epiplocele* the characteristic marks will be less clear, being more or less accompanied with a combination of the symptoms which attend the simple cases. As the smooth, slippery surface of the intestine generally makes its reduction easier than that of omentum, if a portion of the contents slip up quickly and with noise, leaving behind something which is less easily reduced, the case, in all probability, is an *entero epiplocele*.

Causes.—The causes of hernia, like those of other complaints, may be either *predisposing* or *exciting*.

Predisposing causes are deficiencies of resistance which some parts of the abdominal parietes are subject to; resulting either from relaxation, formation, or otherwise. Amongst the principal we might enumerate a preternaturally large size of the openings at which the bowels are likely to protrude; a weakness

and relaxation of the margins of these apertures ; a laxity of the peritoneum, an unusually long mesentery or omentum.

Exciting Causes.—Of these there are a long train which could be brought forward, but suffice it for the present treatise to observe a few of the most frequent in occurrence. The grand exciting cause is the powerful action of the abdominal muscles and diaphragm ; to this might be added accidental blows ; great muscular exertion ; pressure from obesity, or the wearing of tight clothes ; pregnancy ; any forcible agitation of the body, as jumping, violent riding, etc.

Prognosis.—On the subject of prognosis, the age and constitution of the subject, the date of the disease, its being free or not free from stricture or inflammation, the symptoms which accompany it and the probability or improbability of its being returnable naturally, produce much variety. The danger of hernia is in proportion to the smallness of its size. If the hernia is large it is more easily reducible. If, on the contrary, the hernia is very small, the ring through which it passes being extremely narrow, the protruded parts are tightly embraced, the hernia is very liable to strangulation, and in this state is rarely reducible.

Treatment.—The treatment of hernia must necessarily depend on the circumstances of their being *reducible*, *irreducible* or *strangulated*. When you meet with cases of reducible hernia, your treatment must be the immediate return of the tumor, and afterwards use such means as will be likely to prevent a recurrence of the protrusion. As soon as the parts are returned, an appropriate truss should be put on and worn without remission. Be careful that equal pressure on the part is secured, and the patient should be directed to keep the parts clean. Although many persons are accustomed to frequent hernia which are spontaneously or readily reduced in the supine posture, they should be informed that by neglect they are in danger of bringing on such a state of protrusion as may put them into hazard and perhaps destroy life. It is therefore, always advisable, for persons subject to reducible hernia to wear a truss ; this, moreover, should be well made, and properly fitted to the mouth of the sack, for as in these cases, the opening in the tendon is usually both large and lax, and the parts having been used to descend through them, if the pad of the truss be not placed right, and there be not a due degree of elasticity in the spring a piece of the intestine will, in some posture, slip down behind it, and render the truss productive of that very kind of mischief it ought to prevent.

The most frequent causes which prevent the ordinary reduction of hernia, may be considered, either the largeness of the contents, and alterations made in their form and texture, adhesion of parts and transverse membranous bands within the sac. In addition to these causes, there are occasionally others, but of too unfrequent occurrence to require naming here. Irreducible or strangulated hernia, can generally be reduced and replaced by giving internally :

R—Tr. Lobeliateaspoonful j.
Fld. Ext. Sanguinaria.....gtts. x.

Give at a dose and repeat in two hours. Apply to the parts :

R—Tr. Belladonna .....	.....	} aa.
“ Lobelia .....	.....
“ Arnica .....	.....
		5 j.
		5 ss.

Mix, and apply to the parts. Keep a cloth saturated with this constantly applied, until reduction can be effected. Then apply a well fitting truss, and you have obtained all possible relief, except from an operation, which none but the most skillful surgeons should undertake. If persons pay proper attention to themselves, they would never have rupture, as nothing but real violence can bring it about. Avoid it, as once established, a radical cure is next to impossible.

ACUTE PERITONITIS.

Symptoms.—Being introduced by languor, chilliness and rigors, aches in the back and inferior extremities, the disease is developed by the supervention of fever, oppression of the epigastrium, more or less acute pain in the lower part of the abdomen, sometimes circumscribed, though it may be diffused. The pain in the beginning sometimes fluctuates, and may thus be characterized throughout the case; but it is more apt to become fixed. The covering of the bladder being concerned, there will be difficulty of urination; of the diaphragm, straightness, often spasmodic uneasiness, and, uniformly singultus; of the stomach, nausea and vomiting; and of the intestines, constipation, etc.,. Sometimes, thirst, internal heat, and dryness of the fauces, pulse small, quick and corded. In the course of twenty-four hours, the sensibility is so great that the weight of the bed clothes can scarcely be borne. The pulse becomes upwards of one hundred in a minute, the tongue loaded with a white fur, or clean with polished tips and edges, and the countenance assumes the aspect of distress.

The symptoms progressing in violence, the abdomen may become greatly swollen, from flatulence of the bowels, or emphysema of the subcellular tissue. At this time it is not rare for the pain suddenly to cease. Simultaneously the pulse sinks in force, while it vastly increases in rapidity. There are vomitings of dark blood, singultus and collapse. In children a sudden translation may take place to the brain productive of convulsions. Like gastritis, this inflammation may exist in a state of disguise. Peritonitis may run its course in five or six days, or even half that period.

Causes.—No age is exempt, though that of maturity is most susceptible. Various applications of cold, mechanical violence, extravasations into the peritoneal cavity, the sudden suppression of customary discharges, parturition, recession of rheumatism, gout or cutaneous eruptions, and spasmodic inflammation are among the causes.

Diagnosis.—Distinguish from gastritis, enteritis and colic. Very characteristic of peritonitis is the tenderness and early tensiveness of the abdomen, rare inclination to go to stool, and the little mitigation of pain experienced from alvine discharges. The patient lies on his back, with the legs drawn up, in order to throw the weight of the intestines on the spine, and relax the abdominal mus-

cles. It is discriminated from neuralgia of the abdominal muscles, or periton-eum, by the absence of constitutional disturbance.

Prognosis.—The case being established, proves, for the most part, exceed-ingly intractable. Being the result of injurious, or extravasated fluids, except in the case of dropsy, the prognosis is most unfavorable. The sudden cessa-tion of pain in the height of the disease, is the precursor of gangrene and death.

Post Mortem —Vascularity or lividness, in patches, or diffused ; adhesions to the viscera ; frequent extensions of inflammation to the tegumentary periton-eum, and the subjacent tissues, extravasations of coagulable lymph, serum, blood, or pus, and gangrene, but never ulceration. The blood may be with-drawn from the peritoneum, so as to leave it pallid, in the act of death.

Treatment.—We should confine the patient to a recumbent position in bed, applying warm fomentations, or a poultice of flax seed, or slippery elm sprinkled with equal parts of pulverized lobelia and capsicum ; make them light and cover with oil-silk to prevent evaporation of moisture.

R—Syr. Rhie et Potass..... ʒ iv.
Fld. Ext. Leptandria..... ʒ ss.

Dose.—One tablespoonful. This should be given in the very first stage ; after that use emolient enemata. Put your patient on diaphoretics :

R—Fld. Ext. Aselepias..... } aa.
“ “ Serpentaria..... } ʒ ss.

Dose.—Thirty drops once in two hours, with vapor bath. After this give :

R—Fld. Ext. Papaver..... } aa.
“ “ Lactuca..... }
“ “ Humulus..... } ʒ i.

Dose.—Forty-five drops once in three hours.

Continue the poultices, changing as often as necessary. Enemata of lobelia, with a few drops of turpentine added, will prove beneficial when the bowels need moving. Cathartics or purgatives are never advisable after the first few hours. When there is nausea and vomiting give milk and lime water. The diet should be milk and lime water, or brandy and milk, brandy and eggs, pure air, rest ; avoid even the weight of the bed clothes over the abdomen.

CHRONIC PERITONITIS.

Symptoms.—May be either a degeneration of the acute disease or primary. Being the latter its approach may comprehend weeks or months without exciting suspicion. A tightness or pinching soreness, from one ilium to the other, though the skin and abdominal muscles are loose.

The tightness relieved by evacuations from the bowels, and much increased by constipation. Pain felt on coughing or sneezing.

Torpor of the bowels commonly—the stools indicating a want of bile ; the urinary secretion deficient and the appetite impaired ; pulse nearly natural, or

exceedingly accelerated, tongue more or less furred in the morning, thirst urgent, though there is no apparent fever, or even heat of surface, face pale, or sallow and languid; sometimes cough, and towards evening œdema of the feet and ankles. The case being exacerbated, is developed by greater pain, tension, gastric disorder, constipation alternating with diarrhœa, slight fever, aggravated in the evening, and a cleaner or florid tongue.

Those tissues which, in even slight acute attacks, display the sharpest pain, may suffer the greatest disorganizations by a gradual process, without any manifestation whatever.

The disease progressing involves the constitution in hectic, and a general cachexia. The cutaneous vessels may become remarkably turgid. Diarrhœa is usual in the advanced stages. Whether there be ascites or not, anasarca of the lower extremities almost always takes place. May continue from a few weeks to a space of years.

Causes.—The acute affection, ill cured; the causes of acute peritonitis acting on an old or impaired constitution, or one cold and phlegmatic; habitual drunkenness; protracted intermittents.

Diagnosis.—Much like that of the acute disease. Distinguish also from colitis.

Prognosis.—Usually curable, when no structural lesions have taken place.

Post Mortem.—Besides those appearances incident to acute peritonitis, we may observe thickening, or a granulated, tuberculated, or ulcerated surface, adherent hydatids, the intestines agglutinated in masses, disorganization of other viscera, and serum effused in so great an amount as to constitute ascites.

Treatment.—We should at first endeavor to reduce the inflammation by the means detailed under the preceding head tempered to the condition of the system. Then put the patient on a regular course of treatment, alterative and tonic as:

℞—Syr. Hypophosphite Comp.....	5 xv.
Fld. Ext. Asclepias	5 i.

Dose.—One teaspoonful three times a day.

℞—Fld. Ext. Cinchona Comp.....	} aa.
“ “ Lobelia	
	} 3 j.

Dose.—Twenty drops three of four times a day.

Locally ointment of iodide potass. well rubbed in. If we have dropsical effusion then the treatment directed under that head will be advisable.

Keep the patient on nutritious diet, limited in quantity sufficient to keep up the strength.

Warm salt water baths to the spine and abdomen, and as the disease gives way we shall find the belladonna or opium plaster over the abdomen act well.

DISEASES OF THE RESPIRATORY SYSTEM.

CATARRHUS, OR CATARRH.

ACUTE FORM.

The entomological meaning is a *defluxion*. It consists in an inflamed irritation of the mucous membrane of the bronchi, larynx, trachea, fauces, nose and frontal sinuses; or it may involve only a part of these structures. This irritation being sometimes unaccompanied with a defluxion, is called, according to custom, bronchitis. It is the same which some, by a great solecism call *dry catarrh*.

Pathology.—The affection commences in irritation, which, should the case become at all severe, is converted into inflammation.

Its first attack is commonly in the pituitary membrane of the nose, reaching sometimes to the frontal sinuses, which is vulgarly called a *cold in the head*.

It afterward descends the trachæ and bronchi. The alimentary canal, brain, etc., may also be implicated.

Symptoms.—The violence may vary exceedingly. A sense of fullness about the head, sneezing, a distillation of an acrid fluid from the nose and eyes, technically called coryza—lassitude, muscular pains—and finally rigors, or, at least, increased sensibility to cold. Hoarseness, titillation of the throat; stricture of the chest; embarrassed respiration; a dry, irritating cough, or accompanied with glairy mucus raised by hawking and fever, usually exacerbated in the evening and associated with acute pain about the frontal sinuses. After a few days, in favorable cases, the affection passes off with copious and easy expectoration of yellow mucus, or by a watery diarrhœa. But it may run into a *chronic degeneration*.

In *weakly, phlegmatic* constitutions a state of collapse ensues, attended with wheezing and rattling from bronchial accumulations. Owing to this obstruction, the blood being no longer decarbonized, there takes place lividity of countenance and often death.

But in some instances, particularly when epidemic, the disease is formidable from the beginning.

This exacerbated condition may arise from the complication of some other pulmonary, or a gastric, hepatic, or cerebral inflammation.

Causes.—Sudden vicissitudes of weather; inadequate clothing; drafts of air particularly when the body is heated; damp clothes; sleeping in damp sheets, or in a damp room; standing on wet ground; entering suddenly a cold cellar or such other place; certain effluvia, as from fresh paint, or particular flowers; the irrespirable gases; the inordinate use of snuff; and an epidemic influence. Proceeding from the last cause, it is called

Influenza.—This epidemic has existed at least from the fourteenth century. Its general direction is from north to south. The susceptibility to the disease is destroyed for the time by one attack, though, on a return of the epidemic, it may be revived. It does not, however, secure an individual from a catarrh contracted in the ordinary manner.

Diagnosis.—The secretion being abundant, the rattle revealed by the stethoscope is loud and gurgling, though occasionally sibilous, being deficient, the tone is still more sonorous, resembling the cooing of a pigeon, or the scrape of a large violincello, denoting a tumidity of the lining membrane from inflammation. Connected, also, with large secretions, is a suppression of the respiratory murmur, which may, however, be suddenly restored, from a removal of the obstruction by coughing.

Prognosis.—The epidemic form most dangerous, and sometimes very fatal. Either an exuberance of secretion, augmenting oppression, or a total want of it, denoting high inflammation, is unfavorable. Thin and glairy sputa denote a continuance of irritation, while thick, yellow sputa indicate the approach of convalescence. Catarrh, however, from the danger of its complications, or degenerations, should never be neglected.

Post Mortem.—The membrane is found covered with the matter of sputa; which being wiped away, there is disclosed a redness, prevailing mostly about the end of the trachea, and in the bronchi of the upper lobe of one lung. In non-secreting cases the membrane is also tumefied. But widely spread complications are generally associated with fatal instances.

Treatment.—In acute catarrh or cold give a teaspoonful of composition (myrica comp.) in warm water at night; follow with a mild aperient or purgative pill. This is all that is required in ordinary cases, but when the catarrh is fully established give an emetic of lobelia comp., followed with an alcoholic vapor bath, and give diaphoretics and expectorants combined. The following will be found to meet the indications well:

R—Fld. Ext. Serpentina .....	.....	aa.
“ “ Symphitum .....	.....	“
“ “ Lobelia Comp .....	.....	ss.

Dose.—Twenty to thirty drops with sugar and water, repeated once in two or three hours; an infusion of eupatorium perfoliatum, say a teaspoonful of fluid ext. to a pint of boiling water, given in a dose of a wineglassful till we have free perspiration, and a warm foot bath when we have great termination of blood to the head. The addition of salt and mustard will be of advantage.

As a palliative, a solution of sugar, with enough lemon juice or vinegar to acidulate it, simmered slowly into a syrup will prove useful. The diet should consist of the demulcents. Should something more be necessary, gruel, potatoes, the vegetable soup, etc., may be employed. Confinement in a room with the temperature duly regulated, should be observed, and in severe cases, the patient ought to maintain his bed. Sometimes a lingering cough is left, which resembles pertussis. It will be commonly found that this is owing to diffused inflammation or relaxation about the fauces. If the cough is troublesome, then give:

R—Tr. Sanguinaria.....	}	aa.
“ Marrubium.....		
“ Lactuca.....		
Syr. Simplex.....		3 j.
		3 v.

Dose.—One teaspoonful when the cough is troublesome. Give a mild purgative at night.

CHRONIC CATARRH.

The affection considered under this name is that form which ultimately degenerates into what has been called

CATARRHAL CONSUMPTION.

Symptoms.—Cough, pain in the chest, soreness of the throat; sputa of a glairy phlegm, in the midst of which are small masses like boiled rice, mistaken often for pulmonary tubercle. Being sebaceous, however, they melt on subjection to heat, while tubercular matter does not. The expectoration gradually becomes more copious, mucoid, puruloid, and finally pus, which, however, is secreted by the mucous membrane. The purulent matter is grayish or greenish, and occasionally tinged with blood. It may be deficient, or may amount to even pints in twenty-four hours. The pulse hard and accelerated, and the system ultimately hectic. The disease invading other structures, may assume the form of some other pulmonary disease.

Causes.—May succeed the acute affection, or arise from the same causes. It is owing more frequently to the inhalation of particles thrown off in certain mechanical operations. It may be due to disorder of the digestive apparatus, or uterus, to rheumatism, gout, or the repercussion of eruptions.

Diagnosis.—Often difficult from the complications of the disease. Distinguished from tubercular consumption, by the fluid nature of the sputa. Proceeding from a tubercular cavity, they are thick, wooly, and always spit up in dabs, or separate cheese-like masses. Tubercle is sometimes, however, productive of catarrh.

Learning from percussion the presence or absence of tubercle, we perceive, if the attack be chronic catarrh, the same sounds as in the acute affection. We have also, as guides, the absence of pectoriloquism, cavernous respiration, the permanent want of the respiratory sound from induration, etc., sounds which denote phthisis.

Post Mortem.—Appearances, in an early stage, like those of acute catarrh. In older cases is exhibited hardening or softening; where the affection is excited by acrid inhalations, small ulcers, dilatation of the bronchi, and sometimes merely a preternatural paleness of the membrane. Besides, we occasionally observe extraneous complications.

Treatment.—In chronic catarrh the treatment will be both constitutional and local. We would begin with an alterative and expectorant combined. The following will answer well:

R—Syr. Stillingia Comp.....	}	3 iv.
Tr Sanguinaria.....		
Fld Ext. Glycyrrhiza.....		
Iodide Potass.....		3 ss.

Dose.—One teaspoonful three times a day in water,

R—Fld. Ext. Cimicifuga.....	} aa.
“ “ Zanthoxylum.....	
“ “ Dracontium.....	
“ “ Inula.....	
	3 ss.

Dose.—Twenty to thirty drops with sugar and water, three times a day. To procure rest at night the fld. ext. humulus in twenty-drop dose. Locally:

R—Fld. Ext. Myrica Cer.....	} aa.
“ “ Nymphia Odor.....	
“ “ Hydrastis Can.....	
Tr. Capsicum.....	5 j.

Add one teaspoonful to one pint of water, use with douche, two or three times a day. Where we have chronic catarrh associated with anæmia, then the hypophosphite comp., or cinchona and phosphoric acid will meet the indications, with proper local washes and gargle. All washes for the nasal cavity should be slightly stimulating and astringent, and should be used warm, as cold applications always aggravate the troubles. No snuff powders or inhalations will cure catarrh; it must be something to improve the blood, get up a healthy circulation, and act on all the secretions, in a word, to build up the vital powers.

ACUTE BRONCHITIS.

This disease is met with in two forms. The common acute bronchitis is a severe inflammation, confined to the larger subdivision of the bronchi. Capillary bronchitis consists in inflammation restricted to the minute branches. These divisions are of no great importance, as both are inflammation of the mucous membranes of the bronchial tubes. It may be acute or chronic, and may affect one or both lungs throughout, or only the upper tubes.

In acute bronchitis we have clearness on percussion on both sides of the chest. The respiratory murmur is harsh, and in the early stage, the sound is what we may term a dry rale, and in later stages it assumes a moist sound or rale.

In the second form—capillary—we have a contraction or diminution of the calibre of the small tubes. The presence of effusion in the tubes obstructs the passage of air to and from the vesicles. This obstruction gives it the form, or peculiarities of this type.

Pathology.—Differs from catarrh in proceeding from irritation and congestion, with inflammation of the mucous membrane and in being confined more to the bronchi. Hence it is that the secretion is pituitary rather than mucous, and that in the form now considered, it occurs exclusively among the infirm and aged who cannot support any high degree of inflammation. The lividity proceeds from an imperfect decarbonization of the blood.

Symptoms.—Bronchial inflammation is always accompanied with more or less congestion, and this gives rise to the peculiar respiration, which is caused from the passage of air through the effused products. Many of the more urgent symptoms are due to this—as difficulty of breathing, sense of tightness, stricture, oppression, wheezing respiration, severe coughing, vertigo, pain in the head, expectoration of thick, glairy mucus, and afterwards of purulent secretion, weak pulse, foul tongue, headache, lassitude, anxiety, etc. Inflammation

of the larger and medium sized tubes is attended by less severe symptoms than general, or capillary bronchitis. The capillary form is more frequent in the young and very old. It is usually recognized by its tendency to produce asphyxia, paroxysms or difficulty of breathing, congestion, perpetual cough, general restlessness, increasing prostration, and, in fatal cases somnolence, muttering, delirium, coma, etc. Frequently one or more lobes choke up with phlegm, producing pulmonary collapse, the result of a portion of the lung being emptied of air. Vesicular emphysema may result from a collapse; a loss of function in a less portion of lung is generally compensated for by increase of volume in non-obstructed portions.

Causes.—Same as those of catarrh.

Diagnosis.—In the early stages auscultation will detect two dry sounds—*rhoncus* and *sibilous* in technical phraseology. Rhoncus is the peculiar sound belonging to affections of the larger bronchi; sibilous denotes affection of smaller air tubes and is more dangerous. After the inflamed membrane has poured out fluid we have the moist sound in place of the dry crepitation. No marked alteration of sound of chest can be detected, except peculiar dullness on percussion.

Prognosis.—A dangerous disease. The favorable signs are easy expectoration of thick, yellow, tenacious matter, improved respiration, warm skin, and above all, defluxions from the nose. It terminates in three or four days, of may do so even within a few hours.

Post Mortem.—The bronchi will be found engorged with glairy secretions, and the vessels sometimes injected, yet the mucous membrane is usually rather paler than natural. The lungs, brain, and other structures may be involved.

Treatment.—In acute bronchitis confine your patient to his room and to the recumbent position; keep the temperature of the room up to 70 degrees; the atmosphere of the room should be kept moist by vapor—acidulated if possible. Give an emetic of lobelia comp., follow with alcoholic vapor bath. Diaphoretics and sedatives are demanded here, and none are better than the following:

R—Fld. Ext. Asclepias	aa.
" " Serpentaria	3 j.
" " Lactuca	3 ss.

Dose.—Thirty-five drops every three hours until the pulse is reduced and the fever is diminished, then give:

R—Fld. Ext. Cyripedium	aa.
" " Lobelia	3 j.
Tr. Capsicum	3 iv.
Glycerine	3 vi.

Dose.—One teaspoonful three times a day. Warm salt water to the spine, and some stimulating plaster or poultice constantly applied over the chest. Let the diet be beef tea, arrow root, mucilaginous drinks. Let special indications be met by proper remedies; give mild cathartics to remove constipation. Sanguinaria is a most excellent remedy. The acetic tincture of sanguinaria, in ten to fifteen drop doses, is excellent, and will do more to relieve bronchial inflammation than any other one remedy.

CHRONIC BRONCHITIS.

This is most common in advanced life, and is frequently associated with laryngitis. It often follows or accompanies measles, scarlatina, mucus phthisis, mechanical irritation.

Symptoms—A dull uneasy sensation, usually under the sternum ; cough, expectoration of glairy or frothy phlegm, sometimes becoming puruloid or purulent, though oftener glairy, and still more commonly unchanged in character but augmented in quantity, attended with heavy dyspnœa and constant wheezing and rattling. Pulse feeble, skin pallid and damp, with a tendency to œdema. Thus, with occasional fluctuations, may the disease run on for years. Death may occur from suffocation, or dropsy, or absolute exhaustion, or hectic irritation.

Causes.—An ill-cured acute affection ; cold and humidity operating on a lymphatic constitution, or on a constitution vitiated by intemperance, gout, etc. To dyspepsia, chronic hepatitis, and perhaps to worms, it is sometimes owing.

Diagnosis.—Distinguished by the wheezing and rattling, the pallor, flaccidity of skin (and sometimes œdema of the face), and *by the same auscultatory signs as in acute bronchitis*.

Prognosis.—In old or complicated cases, generally unfavorable.

Post Mortem.—Organic alterations—such as^a ulcerations, granulations, hardening, etc., are discovered in the bronchia. The lungs are often hepatized, the abdominal viscera frequently found in a state of disease, and dropsical effusions are common.

Treatment.—The treatment will consist of alteratives and tonics, with the sanguinaria, or stimulating expectorants, as directed in acute cases ; salt water baths to the chest, nitro-muriatic acid dil. before meals, comp. tinct. cinchona after meals, a good nutritive diet, etc.

There is another form of chronic bronchitis, incident to old age.

Symptoms.—Cough and defluxions. These, however, being inseparable from the conditions wrought by old age, hardly become objects of medical treatment. But being aggravated by a cold, the symptoms exhibit a morning and evening exacerbation, at which time the dyspnœa is distressing, the wheezing and rattling sonorous, the pulse feeble, skin cold, and countenance haggard. The disease may be frequently repeated upon fresh exposures, until the powers of life are expended. The disease is sometimes, however, continuous for years, and may be attended with immense secretions.

Treatment.—Being a modified form of chronic bronchitis, the same remedies are applicable ; to be employed, however, with less rigor, and to a less extent. In all these chronic bronchitic affections the diet should be moderate, but nutritious ; and when the weather is dry, the patient should go about freely in the open air. There is also yet another form, incident to children, and varying in nature between a catarrh and bronchitis, entitled accordingly by one of the above mentioned names. Generally met with between the ages of two and three ; though often much earlier or later.

Symptoms.—In the *primary* beginning as a common cold, it may thus continue several days, yet there is some disposition to heaviness. Fever moderate or entirely absent.

Secondary—Fever ; dry, frequent cough, sometimes hoarseness, and constriction of the chest.

Tertiary.—A state of collapse. After a series of remissions and exacerbations, the child sinks away in a comatose state, or suddenly perishes by suffocation. The affection has sometimes a bronchitic character from the commencement. Occasionally, other portions of the respiratory apparatus are involved, and at other times, by an extension of irritation, the *primæ viæ* are implicated. It is remarkable how prone these catarrhal and bronchitic affections are to degenerate into effusions in the brain.

Causes.—Chiefly occasioned by vicissitudes of weather. But it may prevail epidemically. Phthisical children are most subject to the affection, but the robust are very apt to contract the catarrhal variety. For the pathology, etc., the remarks on these subjects under the corresponding diseases of adults will suffice.

Treatment.—An emetic of lobelia comp., a mild purgative, something to act on the liver, as podophyllin and leptandrin ; the object is to arouse the secretory action of the liver, which is always more or less impaired. We should persevere until we discover that welcome harbinger of amendment, discharges of bile ; warm salt water over the chest, stimulating liniment or poultices of flaxseed sprinkled with capsicum and lobelia. Follow with tonics to brace up—such as hypophosphites, cinchona, etc.

CHRONIC INFANTILE BRONCHITIS.

The catarrhal variety has in it nothing singular. But the bronchitic form, and especially that known as *phthisic* may claim slight attention. It is sometimes congenital or manifested at least soon after birth, and is then often connected with a contracted chest, and almost uniformly with a phlegmatic temperament. Excepting a perpetual excess of bronchial secretion, with a wheezing and rattling, nothing is usually discovered, until an exacerbation is induced by exposure to cold, when there is an accession of fever with pulmonary oppression.

Treatment.—Manage the attack like one of common bronchitis. In the interval of attacks careful avoidance of exciting causes should be observed, and tonic medicines and regimen become of service. The affection arising from mal-conformation we can affect little. Puberty, however, sometimes develops a favorable change of structure.

CROUP.

Consists of an inflammation chiefly in the larynx in the commencement, and in the bronchia in the termination. The disease is mostly confined to early life, and the attack usually comes on at night.

Pathology.—The almost entire insusceptibility of adults to the disease, is attributed to that mutation which takes place in the larynx about the age of puberty, and is evinced by the enlargement of its calibre, and the deepening and strengthening of the voice. The affection may be either spasmodic or inflammatory. Its spasmodic nature is demonstrated by its occasionally supervening in a moment, and being connected, as appears from the necroscopy, with no inflammatory appearances. But the spasm is soon converted into an inflammation. The extravasation of coagulable lymph in croup, when it does not take place in catarrhal inflammation of the same part, is attributable to the superior intensity of inflammation. In the croup of children there is a greater inclination to the effusion of coagulable lymph, which results from the greater proportion of fibrin existing in those whose system is still in a state of growth.

Symptoms.—In the *aggressive* stage a dry, hoarse cough, compared to the barking of a small dog. At this time there is no appreciable constitutional disturbance. The child soon relapses into a sleep, from which it is again aroused by the cough. Cases of this kind soon perish if relief be not afforded. The attack, too, being apparently overcome, manifests a lively disposition to return a few hours afterward, or at least the next night, or the disease may supervene as a cold.

Catarrhs destitute of a defluxion are very apt to become croup.

In the advanced stage we have an active, tense pulse, flushed face, and hot, dry skin, the respiration audibly impeded, and distinguished by a stridulous intonation resembling cooing, or in some instances, especially when the case is somewhat further advanced, by a species of hissing. The cough becomes whooping, and is always without expectoration or defluxion from the nose or eyes.

The voice is hoarse, or whispering. The alimentary canal is remarkably insensible to remedies. The brain shows its affection by flightiness, or somnolency. Subsequently is expelled with difficulty, phlegm, or ropy mucus, or albuminous matter, which, while in the larynx, occasions a wheezing or rattling. Being thrown up, temporary relief is afforded.

Henceforth the symptoms are those of slow suffocation. Yet in the hawking which is sometimes made, the coagulated lymph, which had been effused by the larynx, is brought up and a cure is effected.

The disease seldom exceeds two or three days, and may, when of the spasmodic form, terminate in a few hours. The inflammation sometimes travels down to the remotest ramifications of the bronchi. The case may also be complicated with engorgement of the lungs, inflammation of their structure, or serous covering, or with œdema of the cellular texture.

Causes—predisposing—The period of life between one and five years,

(though the affection is probably incident to adult age). It seems to be sometimes hereditary.

The exciting causes are a cold, damp atmosphere. It seems endemic in certain situations.

Irritation of the *primæ viæ*. Spinal irritation. Mental emotions. Scarlet fever, by an extension of inflammation to the larynx, sometimes assimilates croup.

Diagnosis.—It can hardly be mistaken by those who have once seen it. Chiefly does it resemble *laryngismus stridulus*, and *cynanche laryngea*, the distinctive marks of which will be pointed out when these diseases are taken up.

To discriminate the two varieties of croup—spasmodic and inflammatory—we need only advert to the mode of attack. The *spasmodic form* supervenes suddenly, and in children, and usually at night.

It is betrayed by the clangorous or barking cough, and sometimes by manifestations of impending suffocation. In adults it is often induced by mental emotions.

The *inflammatory form* approaches gradually, as catarrh, with slight or no defluxions from the nose; and the croupy cough, when formed, is less clangorous. The creation of an adventitious membrane in the windpipe may be inferred from a sensible abatement of intensity in the tone of the cough, the hoarseness degenerating into a whisper, the breathing appearing as if it were made through gauze, and the dyspnœa amounting to strangulation. On the other hand, the obstruction from a secretion less adhesive than plastic lymph, allows the same sort of wheezing and rattling which belong to catarrh or bronchitis. We may be aided by an auscultation.

Prognosis.—Under the Reform system of practice, treated early and judiciously, the prospect is good; but being confirmed, or the membranous exudation having been thrown out, or the lungs having become in any way implicated, the cure is more protracted.

Post Mortem.—At an early period no lesion whatever may be observed, or there may be merely evidence of pre-existing spasm of the glottis.

At a more advanced period there may be high inflammation of the larynx. Its tissues may be only tumefied; but more frequently there are extravasations of ropy mucus, or of coagulable lymph—the latter in broken pieces, or constituting a tubular lining down the trachæ, and sometimes to the terminations of the large bronchi. This lining may be either a yellow, pulpy matter easily detached, or it may be very tenacious, like pure lymph, and forming, as was formerly mentioned, an adventitious membrane.

Besides, may be observed the evidences of those pulmonary complications already alluded to.

Treatment.—My mode is simple and so successful that I never lost a case to which I was promptly summoned. Whether the affection be a spasmodic irritation or inflammation the management may be identical.

I will not allude now to the hysterical and neuralgic forms, which occur in advanced life.

When called to a child attacked with croup, take it into a warm room, have it placed in a tub of warm water, say about blood heat, saturate a towel with cold water to which you may add tinct. lobelia, and apply to the throat, renew every few minutes. Give at the same time internally :

R—Fld. Ext. Lobelia.....	}	aa.
“ “ Sanguinaria.....		
“ “ Dracontium.....		3 ss.
Syr. Simplex		3 iij.

Mix, and give a teaspoonful every fifteen minutes until your patient is relieved or vomits. Apply over the chest a spice plaster, with powdered cayenne pepper added. In membranous croup apply belladonna ointment over the throat, and give :

R—Tr. Lobelia.....	3 j.
Aqua	3 iij.
Iodide Potass	3 iij.

Dose.—One teaspoonful, repeat once in three hours. With this treatment I have never failed to relieve a case of croup. Every physician should have these remedies for croup at hand, so insidious is the attack that we sometimes have no time to send for medicines. These remedies never fail, and cost but little to have them at hand.

LARYNGISMUS STRIDULOUS, OR ACUTE INFANTILE ASTHMA.

Pathology.—The common notion in regard to this subject is, that the spasm is excited by the compression of the recurrent, or inferior, or laryngeal branch of the par vagum from tumors. But it is doubtful whether the compression of tumors, if they should be sufficient to affect the nerve, would not rather produce paralysis. The spasm, too, in such a case being produced by a permanent cause, should recur more frequently. But, above all, how often do we see the disease without any such tumors? and, conversely, how often do we see such tumors without the disease?

The seat of the disease is in the cerebro-spinal axis. In the progress of the case it is apt to be concentrated in the brain. The disease may either be original to these nervous centres, or it may arise primarily from irritation in the alimentary canal. The analogous cases of adults, are confessedly the result of cerebro-spinal disease, and such they have often, by dissections, been demonstrated to be. It is likely that the affection differs in no wise from the ordinary fits of children, except in the casual accompaniment of spasm of the glottis.

Symptoms.—The child wakes up in an apparently suffocating condition. This state having lasted a few minutes, gives way, and is succeeded by a long, full inspiration, attended sometimes with a whooping or crowing noise, like that of croup. After much agitation the child sinks into a sweet sleep, or attended only by temporary sobbings. On waking it is well, or is cross, or dull and drowsy, which state quickly wears away, or there may be a repetition of the attacks in rapid or more distant succession for an indefinite period. Each par-

oxysm then is lengthened, and sometimes leads to general convulsions in which the fingers and toes are spasmodically contracted.

Death may take place in such paroxysms, or they may be followed by a state of lethargy. In some protracted instances they bear the apoplectic character. A very slight constriction of the glottis sometimes induces this state. The disease is then apt to run a lingering course, the paroxysm recurring every hour or two, or at intervals of days or weeks. It may observe, with considerable regularity, a quotidian, tertian, or quartan recurrence.

In the accute disease, fever is never betrayed ; but in protracted instances, some vascular excitement and determination of blood to the head, may be exhibited.

Causes.—My own experience has been confined to childhood, and chiefly within the period of dentition ; the spasm of the glottis in adults differing in several respects. The great *predisposing* cause, is probably a peculiar irritability of the respiratory tube, and smallness of its calibre.

The *exciting* causes are mental emotions, and irritation of the *primæ viæ*.

Diagnosis.—It is distinguished from *croup* by its momentary nature, and its being followed by no inflammation, and from *asthma* by the breathing being stridulous and dry, instead of wheezing and rattling. It differs from a similar closure of the glottis in adults, in the latter resulting from a highly-wrought nervous condition.

Prognosis.—In its milder forms manageable. But the reverse is true, when the paroxysms become very numerous, and are connected with cerebral disturbance. and when the affection is complicated with dentition.

Post Mortem.—Congestion, serous effusion, or structural changes of the brain, engorgement of the lungs ; and sometimes thymus, or other glands about the neck in a state of enlargement. But occasionally there is no lesion whatever.

Treatment.—The paroxysm is usually so transient that little can be done for the relief of the spasm. Strong counter-irritation, with the aqua ammonia applied along the windpipe may be serviceable ; warm baths, emetics and purgatives. The primary point of irritation being in the alimentary canal, the emetics and purgatives are to be used first. There being worms, these are to be first destroyed by anthelmintics. The best prophylactic agent is the syr. stillingia comp. with iodide potass., a teaspoonful three times a day.

WHOOPIING COUGH.

A period of six days usually intervenes between contact and taking on of this disease.

Pathology.—The seat of the disease has been placed by different writers in the bronchia, either in their larger trunks, or their minute ramifications ; in the larynx ; in the pharynx, in the spinal marrow or brain ; and again in the alimentary canal. Again, one set of pathologists aver that the nature of the action is purely spasmodic ; while another aver it to be actively inflammatory. Most

obviously, however, the affection originates in spasmodic irritation, which, by protraction, may induce inflammation of the mucous membrane of the different parts of the organs of respiration, occasionally an increased secretion, variously vitiated, which, accumulating, may act as an extraneous irritant, and bring on the cough for its expulsion. But, from the peculiarity of the cause producing it, the inflammation of the pulmonary and other structures is specific.

The sonorous inspiration proceeds from spasms of the glottis, and perhaps ultimately from tumefaction of the lining tissue from inflammation. The primary point of irritation is probably in the spinal marrow, especially the upper part, though it is possibly first seated in the respiratory or gastric surface, and be thence reflected from the spinal marrow, by *reflex action*, as it is called.

Symptoms.—The *aggressive* symptoms may begin like an ordinary cold, with more or less fever, which though it usually soon ceases, sometimes continues throughout the course of the disease. When *more advanced*, commonly in from ten days to two weeks, the sonorous inspiration, or whooping commences. The affection now becomes strictly paroxysmal.

An attack is preceded by tickling of the throat, constriction of both the larynx and chest, and a sense of suffocation. Each paroxysm is composed of a quick succession of sonorous expirations, with scarcely, for a considerable interval, any perceptible inspiration. The expiration, however, becomes at length suddenly interrupted by a deep, convulsive, noisy inspiration, accompanied by a lengthened hissing, ending usually by vomiting, or by an expectoration of phlegm. In some paroxysms so great a congestion of the head takes place, that the blood issues from the mouth, nose, eyes or ears, or it may eventuate in convulsions. The paroxysm is sometimes very soon over. At other times it lasts from five to ten minutes.

At this time the intermission between the paroxysms is usually a period of health, though sometimes there is exhibited derangement of the respiratory, digestive, and nervous systems. But such derangement is more commonly met with in a subsequent stage. The number of paroxysms may in the beginning not exceed two or three daily, while at the height of the disease, there may be as many as one every hour. The affection may terminate indefinitely in from one to three or even six months.

Causes.—The affection depends on a contagion, which rarely affects the same person more than once. It is also much subject to an epidemic influence.

Diagnosis.—It is distinguished from catarrh by the paroxysmal nature and other peculiarities of the cough, generally by the absence of fever, and when fully developed by the whooping nature of the cough.

Prognosis.—The disease may terminate in death from apoplexy, convulsions, or suffocation, or it may result in some other affection of the respiratory apparatus, or disease of the brain.

Post Mortem.—Inflammation of the larynx and bronchia, congestion, inflammation and effusion in the brain, lesion of the spinal marrow, and depravations of the digestive organs, especially of the mesenteric glands.

Treatment.—Most of the old school writers only attempt to palliate, and set it down as a disease that must run its course, but I have found it just as

fever. Or the disease may commence as a catarrh, or as gastric irritation, which by metastasis is thrown upon the larynx. Again, it may begin as tonsillitis.

There is a variety, moreover, in which, in place of inflammation there is effusion in the subcellular tissue, called *laryngitis œdematosa*.

When *more advanced* there is an aggravation of the preceding symptoms; a sinking diminutive pulse, cold, collapsed skin, strangling produced by an attempt to swallow, and the most violent paroxysmal dyspnoea. The average duration of the disease is from two to five days, though it may terminate within a few hours.

Causes.—Occurs more among males than females; among adults and the old, than the young. It is brought on by exposure to a cold, damp atmosphere, and by whatever directly or indirectly irritates the larynx.

Diagnosis.—Distinguished from croup by the diffusively inflamed fauces, tenderness of the larynx, difficulty of deglutition, absence of cough and runca, intonation, and by the period of life. In *pharyngitis*, the respiration is unaffected.

Prognosis.—One of the most unmanageable diseases.

Post Mortem.—Where death occurs from spasms, no lesion is sometimes discoverable. But oftener the lining membrane is found red and turgid, the sides of the glottis approximated, the epiglottis sometimes swollen and erected, and *effusion of serum lymph, or pus in the subcellular tissue*. The trachea is seldom affected. The bronchi are occasionally choked up with secretions and the lungs œdematous, inflamed or congested.

Treatment.—To overcome inflammation so as to prevent suffocation from the closing of the glottis by it or the œdematous state, subsequently induces is the great object of treatment, which, if to effect anything, must be active and positive, no expectant course will do here, and remember it is only one little spot, and that little spot stands between your patient and life. Give an emetic of comp. powder of lobelia. This will relieve the spasm, then follow with an alcoholic vapor bath and an active purgative, as :

R -Podophyllin.....	gr. j.
Bitartrate Potass.....	9 j.
Tr. Capsicum	gtts. x.

Give at a dose.

Keep your patient under the influence of relaxing diaphoretics, asclepias, dracontium and lobelia equal parts, in small doses frequently repeated.

Connected with these attacks we have a condition of low vitality, which must be overcome after the urgent symptoms are relieved. We want a good, nutritious diet, something to give tone and strength to the whole system. Beef tea is good, but solid food is more readily taken than liquid, a greater effort is required to swallow liquids than solids. We would remark that no depleting medicines are admissible in this class of disease; nothing will act better than sanguinaria and lobelia.

Keep the patient quiet, apply cold water to the throat, and, if you have an atomizer, use spray of iodide of potassium and warm water.

CHRONIC LARYNGITIS.

This term is used to express a series of chronic degenerations of the wind-pipe, of which the symptoms have usually no great resemblance to the acute affections of the same structure. The term includes the lesions of both the larynx and trachea.

Symptoms.—The most mitigated form is when the only symptom presented is hoarseness. This affection may last a life-time without any deterioration. *Incipient*—In laryngitis proper, we have usually an insidious approach, manifested by the following symptoms: Huskiness of the voice, difficulty of swallowing, a short, dry, worrying cough, hoarseness, pain and embarrassment in speaking, a failing of the voice when elevated, a deterioration of it experienced from a transition to either a cold or hot temperature; uneasiness or stiffness in the larynx, speedily converted into a stinging pain, with a constant propensity to gulp; sometimes pain on pressure; spasmodic paroxysms of coughing, with a particular wheeze on inspiration; commonly derangement of the stomach and bowels; an appearance in the throat when examined, of injection, granulation, aphthous ulceration, hypertrophy of the tonsils, or of elongation and other changes in the uvula. The system at this period betrays its disorder only by irritation of pulse, flaccidity of the skin, and diminution of muscular power and mental energy. The *more advanced* symptoms are violent inspiration; voice very rough or lost in an indistinct whisper; periodical dyspnœa, a hawking up of ropy, or thin mucus, sometimes mixed with puriloid or purulent matter, and spasm in the wind-pipe, occasionally proving fatal. Or the disease may linger along, simulating genuine consumption and bearing the title phthisis laryngitis. Here the irritation extends to the chest, and is followed by hectic.

Causes.—The vocal cords were made for us to express our thoughts, the brain supplies the stimulus to these actions, or rather the nervous energy thus co-operating with the vocal cord in expression, and thus saves us from disease. Now, if we use the vocal cords as in monotonous reading or recitation without the brain co-operating—in other words, if we use the voice without being prompted by the brain entering into the feeling of what we utter, we create a want of equilibrium—disease. The predisposition is laid in the lymphatic temperament, coupled with a false nutrition, though it also often rests upon a vitiated habit of body, and particularly on irritated or depraved states of the chylo-poietic viscera.

The system being vitiated, the disease may be induced by any irritant of the larynx. It may result from the repercussion of acute or chronic eruptions, or to an extension of inflammation or ulceration of the fauces, either common, scrofulous, syphilitic, mercurial, or scorbutic, etc. It is often excited by an elongated uvula, or the irritation of a neighboring tumor, or carious teeth. It is also at times tubercular, and may be then either followed or preceded by pulmonary phthisis. It may be generated by inordinate speaking or singing.

Diagnosis.—Distinguished by ocular examination from lesions about the fauces, which by their irritation of the larynx produce very analogous symp-

toms. Distinguished by physical exploration, from phthisis pulmonalis, and certain forms of bronchocele. Take care also, not to confound it with mere affection of the muscles or nerves concerned in the production of voice.

Prognosis.—Under our treatment favorable, except in cases proceeding from a tubercular or strumous diathesis, which are almost hopeless.

Post Mortem.—Inflammation of the mucus membrane of the larynx, though more usually granulations or small ulcers, particularly around the glottis. Conversions of the cartilages into calcareous matter, are sometimes met with. The subcellular tissue may be dense, or swollen with serous effusion, or may contain small abscesses. Tubercles may be discovered in the trachea, also may be found granulations, ulcers, or tubercles.

Treatment—In the early stage, the treatment should consist of rest of the voice, cheerful mental occupation. If the patient can afford it, a sea voyage, or residence by the sea-shore, change of scenes. Medicinally, we should give the best of diet in connection with nerve tonics. The following will be found excellent :

R—Sulph. Hydrastia	aa.
Phosphate Ferri	5 ij.
Sulph. Quinine	grs. xxx.
French Brandy	3 v
Glycerine	3 xj.

Dose.—One tablespoonful three times a day before meals. Give half an hour after meals :

R—Tr. Nux Vomica	3 i.
Acid Phos. Dil	3 i.

Dose.—Twenty-five drops in one-fourth of a wine-glass of water. Locally I would advise the use of sanguinaria, either applied directly to the throat with a camel's hair pencil, or in the form of spray with the atomizer.

When the disease is confirmed, well established, then we must give a thorough course of alteratives, among which none rank higher than the compound syrup of frostwort, with the iodide of potassium.

Give a teaspoonful four times a day. Under this treatment the patient soon recovers. In extreme cases, the voice may never be fully restored.

PLEURISY.

Inflammation of the pleura may be acute, or chronic, partial or entire.

Symptoms.—Usually preceded by a chill and fever ; then commences an acute, cutting pain in the region of the heart, and is usually termed, in common parlance, a *stitch*. This is aggravated by motion, inspiration, coughing, lying on the affected side. Cough is harsh, short and skin dry, pulse quick, hard ; respiration increased ; restlessness, anxious countenance, scanty and high colored urine ; temperature from 102 to 105 degrees. The deficient elevation in the ribs, with friction sound, is caused by the dry and inflamed pulmonary and costal surfaces of the pleura rubbing against each other. This friction sound is often

felt on applying the hand over the heart ; usually appears the second to the fifth day of the disease ; ceases when resolution takes place ; the two surfaces become moist and smooth, the sound and friction disappear. There is always more or less dulness and swelling of the chest over the heart.

Pleurisy can seldom be mistaken, and the treatment should be active and prompt.

Treatment.—In one half the cases we can abort the disease upon the first appearance of the symptoms. Place the patient in bed, keep him quiet, apply a flax seed poultice, or even a common mush poultice, sprinkled with cayenne ; change often as dry. Give internally :

R—Fld. Ext. Asclepias.....	} aa.
“ “ Serpentaria	
“ “ Lobelia	
Tr. Capsicum.....	} ʒ ss.

Dose.—Twenty drops every hour until pain and soreness gradually subsides, and the pulse is reduced to 70 degrees. Keep the patient warm, and give a very light, nutritious diet, and build up with tonics.

With this treatment we can always arrest the disease in the first six hours, and soon cure it when it has set in. In several years active practice, where this plan was adopted, not a single case was lost. A very good prescription in pleurisy is :

R—Pul. Asclepias.....	} ʒ j.
“ Capsicum.....	
“ Lobelia.....	
Boiling Water.....	} ʒ ss.

Dose. One tablespoonful every hour, with stimulating and relaxing poultices over the chest.

PNEUMONIA.

Inflammation of the lungs may be partial or complete ; may attack one or both, or merely one lobe, due to exposure to cold or wet, or both.

We find the right lung most frequently affected, the lower lobe by preference. In severe attacks it reaches its height the seventh day, average duration under ordinary circumstances, fourteen days.

Comes on with rigors, dull pain in the region, cough, expectoration of a rusty colored matter. The expectoration comes more free on the third day, and the temperature of the body somewhat decreases then, say, from 105 to 100 degrees, pulse usually reaches 140 to 150.

Symptoms.—Pneumonia cannot be mistaken for pleurisy or phthisis. The nostrils are dilated ; the pulse is 140, and corded, the cheeks flushed ; dulness on percussion ; the expectoration is also characteristic of pneumonia. Pneumonia left to run its course will consist of three stages :

1. Engorgement or congestion of the lungs ; too great fulness of red blood in the organs.

2. Effusion and hepitzation of red blood, and the lung becomes hard where it is soft and spongy in health, and we can detect this by percussion mainly.

3. Gray secretion, or infiltration of the lungs with pus, a liquifying of the lungs, which, if the vital powers are not too weak, are thrown off in expectoration, and the closed up or congested condition of the lungs gives way, and we have the air again entering the lungs.

Treatment.—Nine cases out of ten will recover with proper treatment; and too much treatment does more harm than good in any case. Place your patient in bed, wrap him up warm, give an alcoholic vapor bath, and keep the temperature of the room up to 65 or 70 degrees. If the bowels are constipated, or not active enough, give a mild aperient as citrate of magnesia; then give the following:

R —Fld. Ext. Asclepias Tub.....	}	aa.
“ “ Eupatorium Perf.....		
“ “ Serp-entaria.....		
“ “ Papaver.....		ss.

Mix.—Dose.—Forty drops in water, every two hours, until the pulse is down to 70 degrees. Continue it at long intervals to keep it to this point, As an aid to expectoration, I have found the following excellent:

R —Fld Ext Lobelia	}	aa.
“ “ Sanguinaria		ss.

Dose.—Twenty drops in sugar and water every two hours. Keep a warm mush poultice with cayenne pepper well mixed in, over the chest. Avoid all active purgatives or depleting medicine. Give brandy and eggs, or milk punch, and establish convalescence upon eggs, beef, butter, etc. In over two hundred cases of this disease, I never lost but one where this treatment was employed.

CHRONIC PLEURISY AND PNEUMONIA.

These affections are occasional degenerations of the acute inflammatory form, but never of the congestive or typhoid. Chronic pleurisy is constantly seen in the effusions into the pleural cavity of serum or pus. That branch of the disease which terminates in an effusion of serum, is discussed under the head of hydrothorax.

To phthisical degeneration of the lungs and their serous tissue, will the remarks now made chiefly advert.

Symptoms.—A transitory stitch in the side, or oppression and a hard dry cough. These symptoms continue weeks or months, attended by exacerbations and remissions. At last, however, the pain, oppression and cough become more marked, the pulse quick, hard, and febrile, and before long, a well developed hectic ensues. Digestion is sometimes much disordered and the stomach highly irritable. In the closing scenes the dyspnœa and cough become violent, and there is an expectoration of a glairy or a thick, tenacious mucus, bloody, or puriloid, or purulent, and sometimes so copious as to convey the impression that an

abscess has burst. This is indeed occasionally true. The disease is at other times much more disguised.

Causes.—Besides being superinduced upon the acute affection, it may be idiopathic or primary, and proceed from cold and other causes of inflammation. But being idiopathic, the constitution in which it occurs is nearly always a vitiated one.

Diagnosis.—Distinguish from phthisis. The pleuritis is discriminated from the pneumonic affection chiefly as in the acute form. In the former also, when there has been effusion, the intercostal spaces are elevated to the level, or even above the level of the ribs. An ulcerative cavity existing in the substance of the lungs, the cavernous rattle and pectoriloquism supervene. The distinction between a purulent and a hydropic fluid in the pleura, is to be drawn from the general condition. The purulent expectoration of empyema is distinguished from that of the lungs by a garlicky odor.

Prognosis.—Chronic inflammation is in itself manageable; but empyema or purulent infiltration having taken place, the case becomes a serious one, and particularly in a vitiated constitution. Empyema usually seeks an external opening. But the purulent secretion is apt to continue and the passage to become fistulous.

Post Mortem.—Essentially the same with the acute variety. The lungs are often found of diminished size, from the contraction of the false membranes on the pleura, and the compression of a fluid in its cavity. In connection with chronic pneumonitis, we often observe the mature development of phthisis. Purulent infiltration of the cellular tissue is rarely, and an abscess almost never detected.

The abscess constituting the apostenatous consumption of the older writers, is formed in a cyst of coagulable lymph poured out from the pleura on the pulmonary surface. The enlargement of this abscess occasions a gradual compression, and such diminution of the lung as sometimes to induce the notion of its entire destruction. The bronchia are at times implicated, and may be found either contracted or dilated.

Treatment.—The leading idea in our treatment is, inflammation must be subdued and a restorative plan of aiding nature adopted. In the sub-acute or chronic form, active local stimulation with rest, fld. ext. papaver and asclepias. In the chronic form adhesions with membranous bands is common. These cases, however obscure, are easily recognized by the catching pain in movement, as raising the hands or movements sideways. These cases require the application of the irritating plaster locally, kept on continually, spread fresh daily, and the use of alteratives, as comp. syr. stillingia with iodide potass.—a general alterative and tonic treatment. If the pleurisy does not terminate in resolution, or adhesions there is a strong tendency for the inflammation to terminate in effusion of serum, which constitutes dropsy, or adhesion, and these might exist together. The successful treatment of chronic pleurisy involves a union of alteratives and tonics; we must change the habit of the system and construct as well. The irritating plaster produces a powerful disorganizing effect upon effused lymph.

ASTHMA.

Great difficulty of breathing, attended with a sense of suffocation, great thoracic constriction, wheezing and cough.

Symptoms.—The attack usually preceded by premonitory symptoms, such as drowsiness, headache, itching of the skin, flatus, heartburn, acid eructations, sickness, fulness and anxiety about the præcordia, weight over the eyes, etc.

The paroxysm generally comes on at night, during sleep. It is characterized by inexpressible anxiety, very laborious wheezing and suffocative breathing, great tightness about the chest, countenance bloated and livid, sometimes pale, cold extremities, intense desire for cool, fresh air, incapability of lying down, pulse frequent, irregular, and often intermitting, abdomen distended with wind cough, at first dry, a copious expectoration of viscid mucus occurring in the course of some hours, bringing with it considerable temporary relief. The symptoms remit greatly during the ensuing day. On the next night, however, the fit generally returns. In this manner it often goes on with remissions by day, and exacerbations by night, for five or six days, and sometimes much longer.

Causes.—The disease rarely occurs before the age of puberty, and the *pre-disposing* cause appears to be in an irritable, weak condition of the respiratory organs. It seems, in some instances, to be hereditary. Persons of weak muscular power, and disposition to obesity and corpulency, are most liable to the disease.

The *exciting causes* are particular conditions of the air in relation to its humidity, electricity and temperature, various irritating substances conveyed to the lungs, suppression of accustomed discharges, repercussion of cutaneous affections, metastasis of gout or rheumatism, general plethora, gastric and intestinal irritation, derangement of the digestive functions, certain odors, indigestible aliment, anger and terror.

Authors have divided asthma into a great many varieties. It does not appear to me that these distinctions are of any practical utility, although it is unquestionably of much importance to attend to the nature of the exciting cause in prescribing for the disease.

Proximate Cause.—The opinions on this subject are various. Some writers ascribe it to a preternatural spasmodic constriction of the bronchiæ; others to a vascular fulness of the bronchial membrane by which the air cells are mechanically diminished, and a number to general venous congestion of the lungs or to an irritation seated within the air cavities, caused by a viscid and irritating serum. My own opinion is, that it depends on a peculiar irritation of the pneumogastric nerves, in consequence of which the regular transmission of the nervous influence to the lungs is interrupted. This opinion is founded:

1. On the effects which are produced on respiration, by dividing the eighth pair of nerves, which entirely resemble the phenomena of asthma.

2. The suddenness with which the spasmodic breathing may often be allayed by certain medicines, as the *lobelia inflata*; and,

3. The beneficial effect resulting from the transmission of the galvanic influence through the lungs.

Prognosis.—Always favorable in the young or middle aged. When occurring in the aged, and complicated with other diseases, our treatment will be palliative, and in the interval to ward off further attacks.

Post Mortem.—There is always congested condition of the chest and lungs in those who have died from or during attacks of asthma. In most cases it would be difficult to determine as to the cause of death, unless familiar with the history of the case.

Treatment.—If called to a patient during a paroxysm of asthma, our first object will be to arrest or mitigate the attack. To this end we would give :

R—Fld. Ext. Lobelia Inflata	aa.
" " Symplocarpus Fœt.	
" " Sanguinaria Can.	5 j.

Dose.—Thirty drops in warm water sweetened with sugar, and repeat every ten minutes till relieved. The worst attacks will often yield in fifteen to thirty minutes to this treatment. There is no agent in the materia medica that has such a happy effect in asthma as the lobelia inflata, it may be given alone, or in combination as above, and will always give relief. During the interval we should build up the general nervous system, and remove the cause, if possible. In a general course of treatment, we shall find mild purgatives demanded, say :

R—Syr. Rhei et Potass.	5 ii.
Fld. Ext. Leptandria	5 ss.

Dose.—One teaspoonful, and repeat in six hours until the bowels are moved. Expectorants will be found useful.

R—Fld. Ext. Lobelia	aa.
" " Sanguinaria	
" " Pulmonaria	5 ss.
Silphium Gummi	

Dose.—Twenty to thirty drops in sugar and water once in three hours.

Alteratives, tonics, and diuretics will be found to meet the indications in most cases, as :

R—Spr. Stillingia Comp.	5 vi.
Fld. Ext. Buchu Comp.	5 j.
" " Grindelia Robust.	5 j.
Iodide Potass.	5 ss.

Dose.—One teaspoonful three times a day.

The diet should be light, easily digested, and at the same time, nutritious. No depleting agents are admissible, especially in anæmic patients. The supper should be taken at least three or four hours before retiring ; the sleeping apartment well ventilated and free from draught. In those cases arising from the suppression of some accustomed discharges, sudden going in of eruptions, etc., the indications of treatment are plain—re-establish the discharge or eruption, and the asthmatic symptoms will disappear.

Asthma is always aggravated by the use of heavy, undigested food, and the use of alcoholic liquors, all of which should be prohibited.

EMPHYSEMA.

We have two varieties of emphysema, vascular and interlobular.

Vascular emphysema is an enlargement of air cells, and atrophy of their walls may result from fatty degeneration, or fibroid degeneration, a kind of intestinal death destroys the elasticity and contractibility in the parts affected.

We have extreme softness and delicacy, sometimes obliteration of the blood vessels, of the affected part.

Interlobular emphysema is an infiltration of air into the inter-lobular areola tissues. Both forms produce shortness of breath, occasional paroxysms of asthma, difficulty of breathing, great distress, unfitting the patient for any active occupation, and may give rise to disease of the heart and dropsy.

Symptoms.—In all forms of emphysema, we have difficulty of breathing, especially on the least exertion; feeble cough, expectoration of a frothy mucus, dusky appearance, weakness of voice, stooping gait, loss of flesh and strength. We have diminished temperature, coldness of the surface, weak, low pulse, attacks of asthma and arrested secretions; percussion reveals unnatural clearness, heart sounds feeble, and sometimes we have a sort of displacement of the heart, giving to the affected side a prominent, rounded appearance.

We have an increasing loss of vitality in the system, and especially in the pulmonary membrane. Our leading object should be to increase vitality.

Non-expiration is the dangerous and injurious part of breathing, especially forced and arrested expiration. We should strictly prohibit every occupation that prevents the free expiration and inspiration—nothing that will cause the patient to hold in his breath—such as lifting heavy weights, digging, chopping with an ax, rowing, etc.

Treatment.—Restorative—we must seek to restore vital power, and to do this we want to create blood—we want to give tone and strength to the nervous system through the formation of blood—good, pure blood.

We should, therefore, recommend the very best diet; keep the digestive organs healthy. We would put the patient on the following:

\mathcal{R} —Acid Phos. Dil	℥ iij.
Glycerine	℥ x.
Tinct. Cinchona Comp	℥ iij.

Mix.—Dose.—One teaspoonful before each meal.

After meals, give tinct. hydrastis can. or dialyzed iron, twenty drops, in water. Nothing of an alcoholic nature should be given, for nothing tends so much to degeneration here as the poison of alcohol.

We may give, at night, say, thirty drops tinct. lobelia, or:

\mathcal{R} —Tr. Lobelia	} aa.
Fld. Ext. Grindelia	
	℥ j.

Mix.—Dose.—Twenty to thirty drops before retiring.

This will relieve or prevent asthma. We sometimes have an unhealthy condition of the mucous membrane of the bronchial tubes and throat generally, then a few drops of myrcia and capsicum, once a day, will have a good effect.

Patients of nervous temperament are more subject to emphysema than any other. Those of sanguine temperament seldom have any trouble of the kind. Expectorants may give temporary relief, but are of no real benefit; they weaken the appetite, impair the digestion, and prevent the active influence of restorative remedies. The latter is the only class, really, we can look to for any permanent good.

EPISTAXIS.

Bleeding from the nose is often troublesome, and even alarming. It may arise from a variety of causes, blows, plethora, great physical exertion, and may occur as a symptom of various diseases, as apoplexy, heart disease, liver degeneration, scurvy, purpura, etc.

Treatment.—For the purpose of arresting the bleeding, the erect position, removing the necktie, hold both arms above the head, cold cloths to the back of the neck, snuff powdered bayberry up the nostrils. This will usually stop the hemorrhage at once. If it has continued until the general health is affected, we would recommend tonics. The mineral acids, nitro-muriatic dil., twenty drops in water half an hour before meals, with tonic bitters half hour after. This will usually suffice to stop and prevent a recurrence of the trouble; a few drops of oil of erigeron rubbed well in over the side of the nose will usually arrest the most severe hemorrhage from nostril.

NASAL POLYPUS.

Nasal polypus, though apparently a local trouble, is no doubt due to some constitutional defect. It appears in the form of an elongated tumor, protruding from the mucous membrane of the nose. It may vary, some days protruding while in others it will scarcely be in sight.

We have three varieties—gelatinous, fibrous, and medullary. In some cases it commences from a swelling of the membrane, and gradually enlarges and fills the nostril, and interferes with the breathing through the one not affected. Other cases appear as a sequel to a carious bone.

The gelatinous tumors are soft, resembling an oyster, and bleed on the slightest touch. The fibrous are hard, compact, and the medullary soft, like brains.

Polypus produces a feeling as though there was a foreign body in the nostril; an irresistible desire to blow the nose, increased mucous discharge, deformity of cheek, changed voice, partial deafness.

They are very apt to return, if merely removed with forceps.

Treatment.—I have treated a great many cases, and never resort to snipping them off or cutting. All cases of gelatinous polypus may readily be removed by snuffing up pulverized blood root. It may be used several times a day, and when the nose is too sore to continue, you can leave it off for a few days—two

or three days will usually suffice. For the more compact form apply the tinct. chloride iron freely every day for a week. The tumor will soon slough off and will not return. In addition to that give :

R—Syr. Stillingia Comp ʒ j.
Iodide Potass..... ʒ j.

Dose.—One teaspoonful before each meal.

R—Fld. Ext. Cinchona Comp ʒ j.
Aluus Rub..... } aa.
Iris Versicol } ʒ ss.

Dose.—Twenty drops in water after each meal.

Keep the whole body under good hygienic regime, and you will not have a return of polypus.

PHTHISIS PULMONALIS

Consumptive symptoms may arise from various and distinct pathological conditions. They may depend on :

1. Chronic bronchitis.
2. Ulceration of the larynx or trachea.
3. Chronic pleuritis.
4. Inflammation and suppuration of the substance of the lungs ; and,
5. Tuberculous matter in the pulmonary tissue, constituting genuine *phthisis pulmonalis*.

The first variety is generally the result of catarrh, and usually called *catarrhal phthisis*. This, of all the varieties of consumption, is the most *sanable*, particularly so long as the inflammation of the mucous membrane does not extend to the subjacent parts, or has not terminated in ulceration. The diagnostic symptoms in the early stage, are: Countenance pale, lips bluish, hands and feet often cold, and the temperature of the surface variable; cough deep, and expectoration free from the beginning; slight soreness in pharynx; much oppression, but little or no pain in the chest, cough rarely excited by full inspiration. Cough always severest in the morning, attended with wheezing respiration, until the mucous collected during the night is expectorated. In all these circumstances it differs from *tubercular phthisis*. In the advanced stage it cannot be distinguished from the latter, or genuine form of the disease. Catarrhal consumption often goes on to a fatal termination, without any breach of continuity or ulceration whatever—the pus expectorated being a mere secretion from the inflamed bronchial surface. When this variety of consumption is connected with prominent derangement of the liver and stomach, it forms what has been termed *dyspeptic phthisis*.

In this combination we have, in addition to the ordinary symptoms of phthisis, dyspeptic symptoms—such as furred tongue, foul breath, unnatural stools, capricious appetite, distended epigastrium.

The *majority* of consumptions in this and similar climates are of the catarrhal or bronchial kind. When ulceration of the larynx or trachea is its cause,

the disease is called *laryngeal, or tracheal phthisis*. This is a rapid and fatal disease, the instances of recovery being exceedingly few. One of the first, most constant, and characteristic symptoms, is a *change of voice*—losing at first its clear sound, then becoming hoarse or indistinct, and finally scarcely audible. When the *larynx* is principally affected, we have the following characteristic phenomena: Pain in the larynx, increased by coughing and pressure; cough most violent in the morning, on rising out of bed; suddenly and violently excited by inhaling cold air and irritating gargles and acid drinks. When the trachea alone is affected, the pain is always increased by bending the head backwards, or turning it around, and is generally felt about its bifurcation. The cough is not excited by gargles, or the inhalation of cold air and vapors, but readily by active bodily exercise, and by swallowing—the cough not coming on until the food has descended as low down as the sternum, when it is often brought up again.

Inspiration, during coughing, is generally stridulous, as in croup. The fits of coughing are frequently preceded by sneezing.

In coughing the patient puts his hand to the throat near the breast. The expectoration generally consists of small portions of yellow pus, suspended or mixed with a large portion of bronchial mucus. The most frequent causes of this variety of phthisis are catarrh, whooping cough, croup, and syphilis.

Chronic pleuritis, gives rise to the third variety of phthisis. It is the result of effusion into the cavity of the chest—a termination which always takes place sooner or later in chronic inflammation of the pleura. As the effusion increases, the lung on the side on which it occurs becomes more and more compressed, until it is reduced to so small a bulk as to seem almost completely destroyed. Sometimes ulceration takes place in the pulmonary pleura, in which case the effused purulent or sero-purulent fluid is discharged by coughing. When this occurs, hectic, with its usual train of symptoms, ensues. This variety of phthisis is characterized by increased oppression in the breast, on lying down; *anhelation*, by ascending stairs, or other bodily exercise; alleviation in a sitting posture, generally; some soreness of the integuments of the affected side; pain in the side, confined to a certain space, difficulty of breathing, progressively increased, and finally the absence of pus in the expectoration, and irregularity in the hectic symptoms.

This variety of phthisis is of a very fatal character; though instances of recovery do sometimes occur, by:

1. A gradual absorption of the effused fluid, the lungs forming adhesions with the costal pleura.
2. The escape of the fluid, by the formation of a fistulous passage from the cavity of the chest into the bronchial tubes.
3. By the formation of an opening through the intercostal spaces, and the escape of the fluid externally.

Inflammation, terminating in pulmonary abscess, constitutes the fourth variety. This variety is of very rare occurrence.

TUBERCULAR PHTHISIS.

This variety occurs only in persons of a strumous or scrofulous diathesis. *Tubercles* never form without a *natural predisposition* to them. If the nerve centres are feeble, we have an impaired or degenerated condition of the blood, because that system controls organic life, and the elaboration of that fluid. Where the nervous system is impaired, weak and exhausted, there is always an excess of white or albuminous blood coupled with this condition, naturally weak lungs, severe colds, causing constant irritation, and this albumen, or white blood, throws off its watery portions by absorption, the solid parts coming together form what is known as tubercle.

Now, tubercle is a substance of a cheesy appearance, and when formed in the lungs, causes destruction of the air-cells around each formation. This is the condition of the lungs in every case of tubercular consumption. This consumption may be hereditary or acquired. Tubercles are not confined to the lungs, but may be formed on the brain if there is irritation there, or in the lymphatics if they are irritated; in the mesenteric glands if there be excitement there, and in the lungs only, when there is too great determination of blood to that point, which condition may be brought about by colds, inhaling dust, or the breath of those laboring under consumption of the lungs.

Tubercle found in the brain produces softening, and death soon results. When found in the lymphatic glands, we have scrofulous ulcers, etc. When deposited in the mesenteric glands, we have marasmus, or consumption of the bowels, etc. It is claimed by most writers that tubercle is never absorbed, and this class holds to the incurability of tubercular phthisis.

There are, however, remedies capable of producing absorption, or liquefying tubercles, and thus throwing them off again. Tubercles may be encysted and thus be incapable of mischief; and again, they may be thrown off, the cavity fill and produce a cicatrix. This form of disease is usually ushered in with general derangement of the system. Dyspepsia, capricious appetite, furred tongue, increase of the pulse, with various symptoms dependent upon deficient nerve force. The properties of the blood being altogether dependent upon perfect digestion, when this is impaired, the progress of the disease is rapid.

Symptoms.—The *characteristic symptoms* of the commencement and course of phthisis are: tension and slight aching in the breast; slight, short, dry cough; slightly oppressed respiration—a sense of tightness being felt in some particular part of the chest on inspiration. At length moderate febrile symptoms in the evening; the pulse and respiration being preternaturally frequent, coughing in the morning. Cough and expectoration are always met with in lung consumption, dry at first, but as the disease progresses awhile, mucus is discharged, which in time gives way to the discharge of flakes of thick, yellow matter, etc. When a cavity has been formed in the lungs, the cough is hollow, and vibrating; great susceptibility of taking cold, torpor of the bowels, frequently a benumbing and drowsy feeling; tongue moist, covered with a thin, white fur. As the disease advances the cough becomes more and more trouble-

some; there is a great sensibility to low temperature; pearly whiteness of the eyes; skin often hot; lips, tongue and fauces often dry; slight chills in the evening, followed by febrile exacerbations, with a burning heat in the palms of the hands and soles of the feet; expectoration at first scanty and frothy, finally thick puruloid, and often streaked with blood; becoming more purulent as the disease advances; the pain in the chest, and evening fevers, becoming stronger and stronger; the patient lies easy only on one side; profuse sweats occur during the night; the burning in the palms of the hands and soles of the feet is distressing; the pulse very frequent, tense and quick, and small during the febrile exacerbations, but slower and languid during the morning. The cheeks have a circumscribed flush during the febrile excitement. Besides the evening exacerbation, there is, in most instances, but a slight one about twelve o'clock in the day. Towards the conclusion colliquative diarrhœa comes on, the voice becomes hoarse, the fauces aphthous, the feet œdematous; there is sometimes slight delirium, more commonly, however, the mental faculties remain entire to the last moment.

Causes.—The *general* cause is impairment of the vital forces. Consumption may be inherited, or created by a vitiated atmosphere; and, just here, I will take occasion to say that this vitiated atmosphere is often found in the close sick room of a consumptive; the disease transmitted through the breathing of the same air, sleeping in the same bed with the consumptive patient. Self-preservation, nature's first law, demands that these causes should be avoided.

Exciting Causes.—All fixed irritations in the abdominal viscera, repelled cutaneous eruptions, suppression of habitual evacuations, atmospheric vicissitudes, intemperance in spirituous drinks, sedentary employments, the incautious use of mercury, hemorrhages, depressing passions, the inhalation of irritating substances, rapid growth, syphilis, onanism.

Of all these causes, suppression of the cutaneous exhalations by cold is the most common and powerful, in calling into action this fatal malady in those who are predisposed to it.

Prognosis.—Will be determined by the age of the patient, stage of the disease and condition in life, and the amount of drugs he has swallowed previous to our seeing the case. If we have a patient with plenty to live well, with leisure to devote to his treatment, and so situated as to take proper care of his person, and able to afford a good, nutritious diet, then, if not too far advanced, our prognosis will be favorable, and a cure is within easy reach.

Treatment.—In treating this disease we should keep in view the fact that such remedies as increase the vital powers are alone admissible. Anything that debilitates is to be avoided.

Some go to work to stop the cough, giving squills, morphine, paretic, etc., whereas this only hastens the destructive process by preventing the discharge of the unnatural secretions. What we most need is something that will improve the centre of life, the brain and nervous system, establish a healthy action of all the organs, subdue local irritation, and avoid everything that deteriorates. To accomplish the first we must give such medicines as will nourish the brain and strengthen the nervous system.

We must select our patient's diet with this end in view, and with the purpose of making the most blood with the least labor for the digestive organs. Fresh fish are good as a diet, also soft boiled eggs, fat steak, beef, mutton, butter, cracked wheat and ox brain.

A good diet is worth all our medicines. A tranquil mind is a great advantage. We must keep the liver, kidneys and skin in a healthy state, subdue the local irritation by direct medication, and avoid all exposures and everything that can deteriorate the system, mind or body. A mild climate, where there are few changes, is best. No matter if a climate is warm or cold, we want one that is equable. Salt water bathing is good.

Salt quilted in flannel and worn over the chest is good, and serves to protect from sudden changes. Among the remedial agents we have found the most effective in consumption is phosphorus in some form. We have often succeeded with the following:

R—Pure Glycerine.....	} 3 ix.
Acid Phos. Dil.....	
Tr. Cinchona.....	

Mix.—Shake well.

Dose.—A teaspoonful with water before each meal.

R—Tr. Sanguinaria.....	} aa.
Fld. Ext. Prunis Vir.....	
“ “ Cisticifuga.....	

“ “ Silphium Gummi..... } 3 ss.

Dose.—Twenty drops in sugar and water half hour after each meal. For cough:

R—Fld. Ext. Humulus.....	} aa.
“ “ Papaver.....	

Dose.—Twenty drops in water just before retiring at night.

For soreness in the chest apply the irritating plaster, keep it on as long as it can be borne without too much distress. To regulate the liver and bowels when constipated give the patient podophillin and leptandrin at night, and, above all, a good nutritious diet. For night sweats give:

R—Fld. Ext. Populus Trem.....	} aa.
“ “ Cinchona.....	

Dose.—Thirty drops three times a day.

If the bowels become troublesome give:

R—Fld. Ext. Geranium Mac.

Dose.—Twenty drops in sweet milk every two hours. Should hemorrhage occur give:

R—Fld. Ext. Lycopus Vir.

Dose.—Forty drops every two hours until hemorrhage ceases, or oil erigeron—twenty-five drops on sugar, and repeat in three hours if not relieved.

These remedies are found to meet certain indications, and should be omitted (all except the first three) when the symptoms have disappeared. It is a disease, however, that requires the very best agents, and a person once afflicted.

with disease of the lungs will be subject to a return at any time upon exposure to exciting or depressing causes. Seek the very best rational treatment, and when cough and the other symptoms here laid down appear, do not be deceived with the statement that it is the liver, but seek remedial agents at once that can build up; avoid calomel, mercury in any form, but seek life-giving, blood-making remedies alone. I have prescribed such only as experience has proved of the greatest utility in all cases not too far spent.

Other agents may be used in alternation. The yerba santa acts well, also syr. hypophosphites, which may take the place of the glycerine phos. after that has been given some time. It is a remarkable fact that consumptives never admit that they have the disease until too late to do much for them; they always expect to soon get well, even to the last day, and the majority of physicians, either through ignorance or intentionally, deceive them as to their true condition.

DISEASES OF SECRETORY AND GLANDULAR SYSTEM.

THE LIVER.

The liver is the largest gland in the body, weighing from three to four pounds, and measuring laterally about eleven inches, antero-posteriorly about six, and in greatest thickness about three inches. It is situated in the right hypochondriac, epigastric, and a part of the left hypochondriac regions. The upper surface is convex and in relation with the diaphragm, the under surface is concave and in relation with the stomach, duodenum, hepatic flexure of the colon, right kidney and supra-renal capsule.

The upper surface is divided into a right and left lobe—the right much the larger—by a fold of the peritoneum, the broad ligament, the under surface is divided into five lobes—the right, the left, the *lobus quadratus*, the *lobus caudatus*, and the *lobulus spigelii*. It is held in position by five ligaments, four being folds of the peritoneum, and the fifth the *ligamentum teres*, a fibrous cord, the remains of the umbilical vein. It has five vessels—the hepatic artery, the hepatic veins, the hepatic duct, the portal vein, and the lymphatics. The hepatic artery from the coeliac axis supplies the liver with arterial blood. The portal vein brings the blood from the digestive viscera to the liver. The hepatic veins carry the blood from the liver to the ascending *vena cava*. The nerves are from the hepatic plexus of the sympathetic, the pneumogastric and the right phrenic. Its color is a dark reddish tint. Its structure is composed of lobules connected by fine areolar tissues, and the ramifications of the branches of the hepatic vessels. Each lobule is composed of cells, a plexus of ducts, a branch of a vein and minute arteries. The minute ducts unite until they emerge from the lower surface in two trunks which unite to form the hepatic duct. Into this the cystic duct from the gall bladder enters and the two form the *ductus communis choledochus*.

The gall bladder is a reservoir for the bile from the hepatic duct, it being full after a fast, and empty during digestion. The liver has both a depurating and assimilating function. It was long supposed merely to separate the bile from the blood, but it is now well understood that it produces sugar by metamorphosis of some of its own organic ingredients, that this is produced from its own tissue independent of the nature of its food. It is not produced from the blood from the decomposition of the elements of the blood in the vessels of the organ, but from the substance of the hepatic tissue. When thus produced it is absorbed by the blood and transported to other parts of the body. The chemical changes which thus produce sugar from glycogenic matter is part of the nutritive process by which the tissue is sustained and nourished.

The liver also elaborates fatty matters. The blood of the hepatic veins that leave the liver contains much more fat than that of the portal vein which enters it.

So, also, the albuminous matter in the mesenteric veins, on its way from the intestine to the portal vein, is quite different from that of the hepatic veins, the former being a crude albuminous matter, and the latter true blood albumen. The liver, then, is an assimilating organ. Its depurating action is exhibited in the secretion of bile by which the hydro-carbonaceous portion of the *effete* matter from the blood is removed, as the *effete* nitrogenous portion is removed by the kidneys. The bile, while it is partly excrementitious, exerts an important influence upon the process of digestion. It has an antiseptic action on the contents of the intestines. It stimulates the intestinal walls, and by a peculiar physical action on the fats and the intestinal parietes, disintegrates the fats, and moistens the villi, thus facilitating the absorption of fatty matter.

THE SPLEEN.

The spleen is the largest of the ductless glands. It has an elastic fibrous envelope which sends inward small flattened fibrous bands called trabeculæ, often uniting so as to make a frame-work with irregular interspaces, filled with a red-dish pulp. The pulp consists of nuclei and cells mingled with blood corpuscles in all stages of disintegration. The organ is very vascular and richly supplied with lymphatics, connected to the smaller arteries at the ends, sides and bifurcations are the *malpighian bodies of the spleen*. These bodies are identical with the pouches or shut sacks of the lymphatic glands containing a molecular fluid, with nuclei and cells in all stages of development. The spleen in its normal condition averages about seven ounces in weight, but in some morbid conditions it has weighed twenty pounds. Naturally it is largest during digestion, reaching its maximum about the fifth hour after a meal. Situated in the left hypochondriac region, its relations are such that its great variation in size occasions the least possible inconvenience to other organs.

The splenic vessels are very large in proportion to the size of the organ, the artery being the largest branch of the celiac axis, and its veins five or six times larger than the artery and, unlike other veins, without valves. It is richly supplied with lymphatics. The function of the spleen is twofold.

1. It is a diverticulum for the blood from the portal circulation during digestion, and from the general circulation in certain abnormal exigencies.

2. Its malpighian bodies are associated with those of other blood glands in the production of blood corpuscles. That it is a diverticulum for the blood is manifest from its great distensibility, its convenient position, the great relative size of its vessels, the exceptional absence of valves in the vein, permitting the retrograde flow of blood, together with the palpable necessity of such a provision to divert from the portal circulation during digestion the fluids absorbed from the digestive viscera which are in excess of the immediate capacity of the liver, as well as to receive the excessive influx of the blood from the peripheral capillaries and veins caused by chills, etc.

That it is associated with the lymphatic glandular system in the production of blood globules is apparent from the analogous structure of the splenic malpighian bodies with the shut sacks, solitary or aggregated in the blood glands generally, and the fact that the white blood corpuscles are in much larger proportion in the splenic and hepatic veins, than in the general circulation, while in the splenic artery they are very scanty.

THE PANCREAS.

The pancreas is a conglomerate gland, in structure analogous to the salivary glands. It is situated transversely across the posterior wall of the abdomen, at the back of the epigastric and both hypochondriac regions. In length it is from six to eight inches, in breadth about an inch and a half, and in thickness from a half inch to an inch. In shape it slightly resembles a hammer. Its right extremity forms the head, the left forms the tail, and the intermediate portion the body. Its head is embraced by the concavity of the duodenum, and its tail extends to the spleen, and is over the left kidney and suprarenal capsule. A lobular fold of the gland, placed transversely on its posterior aspect, and sometimes attached, is called the *lesser pancreas*. The pancreatic duct or *canal of Wirsung*, extends transversely from left to right through the substance of the pancreas. It opens into the *ductus communis choledochus* near its entrance into the duodenum. In structure the pancreas closely resembles the salivary glands, but softer and looser in texture. The vessels of this gland are its arteries derived from the splenic and pancreatoduodenal branch of the hepatic and the superior mesenteric and its veins, opening into the splenic and mesenteric veins. Its lymphatics terminate in the lumbar glands. Its nerves are filaments from the splenic plexus. The pancreas secretes and discharges into the duodenum a clear, colorless, ropy and somewhat viscid fluid, nearly odorless, with a strong alkaline reaction. It is very similar to the saliva, but possesses in a much higher degree the power of converting starchy matter into sugar. It seems to be the principal use of the pancreas to furnish this fluid for the purpose of digesting the amylaceous portion of the food that has escaped the action of the saliva. It is believed that it is solely by the action of this secretion that the fat is reduced to a condition in which it can be absorbed and digested, that is, decomposed into glycerine and fatty acid. But this view has not been generally accepted. Although the change takes place when pancreatic juices and fat are mixed together in a test tube, it is not probable that the same change occurs in the intestines, the acid gastric juice acting as an interfering agent. It has been claimed that the pancreatic fluid has the power to dissolve albuminous matters; but this view can not be substantiated. The better view seems to be—and various experiments support it—that this fluid acts mainly upon the starchy substances, and acts, also, auxiliary to other digestive agents upon the fats, though not so directly and decidedly as upon the starchy portions.

HEPATITIS—INFLAMMATION OF THE LIVER.

Pyrexia ; tension and pain in the right hypochondrium, sometimes pungent as in pleurisy, but oftener dull ; pain extending to the clavicle, and to the top of the right shoulder ; difficulty in lying on the left side ; dyspnœa ; dry cough, hiccoughs, vomiting.

Inflammation of the liver is acute or chronic ; the first being marked by the above mentioned signs. The second often not attended by any unequivocal characteristics, but which is to be suspected by the patient having been the subject of causes which derange the liver, by their being a sense of weight and fulness in the right hypochondrium, or from lying on the left side ; and, lastly, by slight pyrexia, with frequent returns of the above mentioned symptoms.

Symptoms.—Very little need be added to these definitions ; it may, however, be remarked that the pain varies very much, both in itself and in its sympathetic consequences, as one or another part of the liver is affected ; the state of the bowels is irregular ; sometimes a diarrhœa will be produced by the increased secretion and acrimonious condition of the bile ; at other times, the inflammation will arrest, or very nearly so, the secretion altogether, and then, of course, there are clay-colored fœces and sluggish bowels ; a yellowish tinge in the eye is not at all uncommon in hepatitis ; the urine is high-colored, and the spirits are for the most part dull and oppressed ; the pulse is sometimes intermittent in chronic hepatitis ; stomach derangements become conspicuous, and there is often a tendency to œdematous swellings about the ankles.

Causes.—Those of inflammation generally ; immoderate use of spirituous liquors ; mental affections ; autumnal heats and colds, giving an acrimony to the bile ; cessation of the menstrual flux, which is sometimes cause and sometimes consequence of the disorder in the liver ; protracted intermittents ; sitting day after day in one position ; tight lacing of stays ; in a word, whatever disturbs the free circulation through this important and complicated organ.

Diagnosis.—From pneumonic inflammation ; from gastritis, by the seats of the pain, and the absence of burning sensation upon anything being taken into the stomach ; by the strength not being so suddenly pulled down as in gastritis, nor the pulse so small and oppressed.

Prognosis.—*Favorable* when the pyrexial symptoms subside, the complexion loses its sallowness, and spontaneous evacuations, as of the hemorrhoidal, occur ; when perspiration becomes general and warm ; when the urine deposits a sediment, or when local inflammation takes place in some part of the body's surface.

Unfavorable, when fever continues, and becomes attended with rigors ; the pain having remitted, and being followed by a sense of fullness, and perception of throbbing, or in the more chronic and, in this country, more common form, the organ becoming hard to the feel ; the yellow tinge of the countenance refusing to give way, and abdominal swelling with fluctuation presenting itself.

Terminations.—In suppuration, the pus pointing outwardly, and being discharged externally ; or making its way into or through the lungs ; or penetrating

into the abdominal cavity; or pushing through the ducts of the liver into the intestines; or getting into the stomach or colon, in consequence of adhesion of the inflamed liver to these last viscera. Schirrous hardness, with enlargement, is a very general consequence of inflammation in the liver; tubercles of all forms and sizes are found in its substance, extensive adhesions take place with neighboring viscera, and parts; vesicular cysts and hydatids become developed; unnatural softness with enlargement sometimes take place.

In fine, there is scarcely any modification of disordered structure that the liver does not occasionally display upon dissection, and this with such a capricious irregularity as to defy a previous judgment.

Treatment.—This must be energetic. Control febrile symptoms. For this purpose we have nothing better than the following:

R.—Fld. Ext. Serpentaria.....	aa
“ “ Eupatorium per	ss.
“ “ Asclepias.....	ss.

Dose.—Thirty drops every three hours, giving in the interval fifteen drops of dilute nitro-muriatic acid in water. Sponge the patient often in warm water in which common soda has been dissolved, sufficient to make the water alkaline. At night give:

R.—Podophyllin... ..	gr. j.
Leptandrin.....	gr. ij.
Sugar of Milk.....	gr. vii.

Give at a dose. As a counter irritant apply the following over the region of the liver:

R.—Podophyllin.....	gr. x.
Alcohol.....	ss. j.

Dissolve the resinoid of podophyllin in the alcohol, and paint over the surface with a camel's hair pencil. Keep up the bathing and a clean condition of the skin all the way through. Chronic inflammation of the liver is often a sequel of the acute, and may be known from the existence of the above symptoms in a modified degree; enlargement in size of liver, and constant dull pain under the shoulder, sallow complexion, high colored urine, and clay colored stools. The great object in treatment is to get up a healthy action by the exhibition of appropriate remedies.

R.—Nitro-Muriatic Acid.....	ss. j.
Tr. Cinchona Comp.....	ss. vii.
Syrup Simplex.....	ss. viii.

Dose.—One teaspoonful three times a day, before each meal, in water. Also give:

R.—Fld. Ext. Leptandra.....	aa
“ “ Podophyllum.....	ss. j.
“ “ Nux Vomica.....	ss.

Dose.—Twenty drops in water, half hour after meals.

In all cases where it is associated with constipation and dyspepsia, we shall make an entire success on the above line of treatment.

CHRONIC HEPATITIS.

Symptoms.—Dyspeptic symptoms, countenance sallow, contracted, and expressive of ill health; dull pain, with uneasiness, tension, and sometimes tumefaction in the right hypochondrium; bowels irregular, commonly costive, sometimes diarrhœa alternating with costiveness; aching pains in the right shoulder; urine tinged with bile, and voided with a scalding pain; tongue white, rather dry; gums unnaturally hard; a continued dryness and constriction of the skin; difficulty of resting easy on the left side; a short, dry cough; slight febrile exacerbations as the disease advances; emaciation, and finally hectic, with a puruloid expectoration. *Terminations*, occasionally in suppuration, more frequently in induration and enlargement; sometimes the volume of the liver becomes contracted. Though indurated and more firm in its substance than natural, it is often specifically lighter than in its healthy state. The substance of the liver usually exhibits a clay or ash color.

Causes.—Chronic hepatitis is sometimes the consequence of the acute form of the disease. Most frequently the result of the *slow* operation of the same causes that produce acute hepatitis, namely, the slow and constant operation of marsh miasmata, etc. The abuse of spirituous liquors a common cause of chronic hepatitis. Protracted dyspepsia produces it.

Treatment.—Chronic hepatitis requires a less active treatment than the acute form. Put the patient on the syrup iris versicolor comp., a tea to a tablespoonful before each meal:

R—Tr. Sanguinaria	} aa.
Fld. Ext. Aletris far	
Tr. Nux Vomica .....		} ʒ ss.

Dose.—Twenty to thirty drops in sugar and water after each meal. The nitro-muriatic acid bath—two drachms each of the nitric and muriatic acid to a gallon of water. Have it warm and immerse the feet and legs in it for half an hour before going to bed. Keep the bowels regulated with mild aperients and establish convalescence on bitter tonics, milk punch, etc.

HYPERTROPHY OF THE LIVER.

Symptoms.—Premonitory symptoms are weight and pain in the right side, lancinating pain in the abdomen, obstinate constipation, urine scanty and high colored, with brickdust sediment. The urine is sometimes clear as spring water for first twelve hours, changing almost suddenly. We have loss of appetite, despondency, desire for death, and suicide is sometimes the result of this disease. On pressing over the right side, we shall find a full hard feeling under the touch. The well defined hard lumps may be felt just under the false ribs in the right side; pressure on the lumps causes sharp pain and difficulty of breathing.

Treatment.—The treatment in enlargement of the liver must be active, and to this end we would give:

R —Fld. Ext. Juglans.....	aa.
" " Chionanthus.....	3 ss.
" " Leptandra Vir.....	aa.
" " Podophyllum.....	5 ii.
" " Sanguinaria.....	3 vi.
Syrup Simplex.....	

Dose.—One teaspoonful once in three hours. Alternate with :

R —Nitro-Muriatic Acid.....	3 ss.
Syr. Iris comp.....	3 viii.

Dose.—One teaspoonful three times a day. Locally, the irritating plaster changed daily. Should the bowels be obstinately constipated, give a saline aperient in connection with above. Salt water bath at night, and a dose of fld. ext. humulus to give rest. Convalescence to be established on tonics, gold thread, hydrastis, populus, etc. The diet should be nutritious and unstimulating. Alcoholic or malt liquors are to be prohibited, and if stimulants are demanded, then milk punch should be administered in small, oft-repeated doses. The use of ripe fruit, or well-cooked fruit will be of advantage in most cases.

FATTY DEGENERATION OF LIVER.

We often meet with a superabundance of fat in the liver. It is found in the form of oil globules in the cells of the affected organ. In fatty degeneration, both the number and size of the globules are greatly increased. One-half of the outer liver is composed of them; in many cases the organ is much larger than natural. When the quantity of oil is less, we have what is termed the nutmeg appearance. The distention of the abdomen is a source of inconvenience, but the functions of the liver may not be much deranged. The disease advancing, the fatty matter increases, and a secretion once designed to become a part of the bile, and thus aid in the performance of the natural functions, now becomes a poison, obstructing the process of secretion.

Diagnosis.—Easy enough to determine the existence of fatty degeneration. When there is swelling or enlargement of the region where the liver lies, in a person of a lymphatic temperament, we may rest assured of the existence of the disease. As it advances, the nature will become more apparent and prominent.

Treatment.—In treating fatty degeneration we must have a care as to diet, avoid all saccharine matter, sugar, starch, etc., anything that is easily converted into fat, and substitute such articles as go to diminish the fatty principle—acid, vinegar, or acetic acid. Lemons, etc., are good, and as remedial agents the following is about the best preparation we have :

R —Tr. Cinchona comp.....	5 iv.
Nitro-Muriatic Acid.....	5 ii.

Dose.—One teaspoonful before each meal. After meals :

R —Fld. Ext. Fucus Versiculosus.....	
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Dose.—Twenty drops in water. This course should be continued for some time, keeping the bowels regulated, and rubbing well in over the region of the liver, a lotion of :

R—Iodide Potass	} aa.
Muriate Ammonia	
Aqua.....	
	3 j.
	3 iv.

Use night and morning, and cover with oil silk.

CANCER OF THE LIVER.

We have in this condition steady and regular enlargement of the liver, often reaching below the false ribs. It has an irregular, knotty feeling when the hand is applied over the gland. I have seen the whole surface covered with cancerous or tubercular growth. Seldom ever meet with a case where the liver is swollen. The disease makes its appearance in middle life, and cause is traceable to a cancerous predisposition.

Symptoms.—Constant pain and tenderness in the region of the liver, with the usual cancerous complexion.

Treatment.—This is only palliative, as not one case, in our knowledge, has ever been cured. Irritating plaster, and also syr. iris versicolor comp. one teaspoonful before each meal. To relieve pain, give twenty drops fld. ext. papaver sol. after each meal, with one-half grain cannabis indica at bed-time. The general constitutional treatment laid down under the head of cancer will do good and retard its progress.

GALL STONES.

Solid concretions of bile usually found in gall bladder, very rarely in substance of liver, and branches of hepatic ducts. Globular, oval, or pea shaped, when found in gall bladder; irregular in shape, rough, rugged, of dark color when found in hepatic ducts; gritty and sand like if found in the excretory passage of liver. They are very light in proportion to their size—newly passed they sink in water, but after a few hours, and when dry, they float.

Symptoms.—Gall stones obstructing the gall duct give rise to the most excruciating pain, coming on in paroxysms, and a dull, uneasy sensation in the liver. In the interval we have bilious vomiting, and the pain becomes so intense that the patient bends himself double, pressing the hand firmly against the pit of the stomach, pain increasing in intensity until the stone escapes into the duodenum, and then it stops as sudden as it made its appearance.

If the passage is slow the patient may suffer from prostration, and have periodic rigors. These calculi may exist without producing any morbid change; may set up a degree of inflammation, with pain about the pit of the stomach, pain in right shoulder and hip, with loss of appetite, indigestion and constipation; the latter is always troublesome in these formations. These stones, when they enter the duct, always give rise to biliary colic, great pain and tenderness under the shoulder and right side.

Treatment.—In treating these symptoms we must relieve the pain ; to this end I have found nothing so good as :

R—Fld. Ext. Lobelia Infla.....	} aa.
“ “ Discorea.....	
	§ i.

Dose.—Thirty drops every fifteen minutes in warm water till relieved. One or two doses is sufficient. Another good form is :

R—Fld. Ext. Lobelia.....	§ j.
Olive Oil.....	§ iv.

Give at a dose. This will relax and dilate the duct, and enable the stones to pass more rapidly ; the oil also has the effect to dissolve the stone. If very persistent we would repeat the prescription every three hours, as the lobelia does not show its constitutional effects on patients of this class. In the interval we would give :

R—Podophillin.....	gr. j.
Olive Oil.....	§ iv.

Give every second night, using alkaline drips and baths during the day. Sulphite of soda, say :

R—Sulphite Soda.....	gr. xx.
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with olive oil, three times a day.

R—Fld. Ext. Nux Vomica.....	} aa.
“ “ Leptandra.....	
	§ ss.

Dose.—Fifteen drops three times a day in water. Use vegetable diet, roast or boiled meat, avoiding all fat ; exercise is advisable and necessary, as it aids the passage of bile through the natural channels.

INFLAMMATION OF GALL BLADDER AND DUCTS.

Symptoms.—Pain in the right side, fever, constipation, nausea and vomiting. Mechanical irritation seems to be the cause of this trouble ; causes thickening of the gall ducts, or the lining membrane rather. We have in the early stages a well defined tumor on pressure to the right of the stomach.

Treatment.—We would give the comp. syr. of frostwort with iodide potass. before each meal, following with :

R—Fld. Ext. Asclepias.....	} § j.
“ “ Serpentaria.....	
“ “ Lobelia.....	aa.
	§ ss.

Dose.—Twenty drops in water after each meal, and just before retiring at night.

ULCERATION OF THE GALL BLADDER.

This may occur with or as a sequel to severe forms of intermittent fever. We may have it associated with gall stone. When this is the case it is usually due to closing of the cystic or biliary ducts. If it is in the biliary ducts we have a termination in incurable jaundice.

Cases are met with, though rare, where the gall ducts become entirely closed, the liver atrophied, and the whole process of secretion and excretion suspended. The continuance of life in this case depends upon some other organs taking the place of the liver and its secretions. This is due to the kind of food used, and the activity of other excretory functions. There is no cure for it, and death is the final termination.

ACHOLIA.

This is an arrest of the functions of the liver, so that matter from which bile is formed accumulates in the system, producing constipation, a condition common to all diseases of the liver, such as atrophy, inflammation of the bile ducts, cancer, fatty degeneration, nutmeg liver, hypertrophy, etc.

Symptoms.—A peculiar and varied state of the nervous system, delirium, convulsions, stages of excitement, partial coma, bleeding from the nose, and sometimes from stomach and bowels, jaundiced appearance of the skin, etc.

Treatment.—Active purgative; something that will act with power upon the liver and bowels. The following acts well:

<i>R</i> —Podophyllin	gr. x.
Leptandrin	gr. xx.
Sanguinaria	gr. x.

Make twenty powders; give one every three hours with bi-carbonate of soda dissolved in water. Follow with:

<i>R</i> —Nitric Acid	5 ss.
Muriatic Acid	5 i.
Aqua	3 jv.

Dose.—Twenty to thirty-five drops in water every three hours, until a decided change in the system is visible.

Tone up with the tonic, or wine bitters, a nutritious diet, etc.

HYDATID TUMORS OF THE LIVER.

Such tumors, while but seldom met with in the liver are of still rarer occurrence in any other organ; they have, however, been found in the brain, lungs, heart, kidneys, spleen and omentum, also in osseous structures, but of all the bones the tibia is the most frequently attacked.

These morbid growths consist of cysts filled with a colorless and limpid fluid, which again contains smaller cysts. From their rare occurrence patholo-

gists are not agreed as to their nature and classification; nevertheless such tumors generally have hydatids floating in their fluid. Whilst naturalists describe several species, the physician is only concerned with one variety, the pill box hydatid, which is the kind that infests mankind. The expressive name acephalocyst has been given to them, signifying a headless bladder. It has fine friable coats of about the consistence of albumen when coagulated. The growth of such tumor is remarkably slow, and its presence unattended by any great inconvenience to the patient.

When, however, the tumor has become large, it is likely to be recognized by its weight, and by its compression on vena cava or portal vein. Should it burst into hepatic duct it may pass into the duodenum, be discharged, and the sac may close and the patient recover. Should it burst either in the peritoneum or lung, the termination is otherwise—fatal peritonitis or constitutional disturbance terminating fatally.

In other cases the result is favorable, even without opening of the tumor; here there would seem to be a secretion of a peculiar kind of matter within the sac, securing the destruction of the hydatids.

When situated in the left side of the abdomen, it may be connected with the kidney omentum or spleen, and though situated in the right side, it may be either the liver, omentum or right kidney that is the seat of the growths; only, as has been already stated, the liver is more frequently the seat of such growths than any other organ. The best, and indeed only successful treatment, consists in the continued use of *syr. stillingia comp.* with iodide potassium for a length of time, in dose of one teaspoonful before meals. Alkaline treatment is emphatically called for, and the free administration of phosphate, or *syr. hypophosphites* should not be omitted.

JAUNDICE. (ICTERUS).

Yellowness of the skin and eyes, whitish feces, the urine being of an obscure or dark red, and tinging linen of a yellow character. The calculous, from gall stones; the spasmodic, from spasm about the gall ducts; the hepatic, connected with disease in the liver; the gravid, occasioned by the gravid uterus pressing upon the bile passages; and the infantile produced by a retention of the meconium are the species usually met with; to these we may add another, *viz.*, the mucous, or that jaundice occasioned by a collection of viscid mucous in the duodenum, plugging up the entrance of the choleric duct into the intestine.

Symptoms.—Great depression of spirits and indisposition to exertion are often the first showings of jaundice when the disorder is ushered in gradually; when it occurs in consequence of spasm or gall-stones, intense pain is usually the primary symptom. Heat and pricking, and eventually itching of the skin, usually accompanies the disease in its course; a bitter taste is often perceptible in the mouth; an irregularity, as well as altered color of the alvine discharges, takes place; occasionally vomiting occurs; feverishness is also present but with more or less decision, according to the nature of the cause which has

produced the yellow hue of the skin. In long protracted and malignant jaundices the skin from being yellow merely becomes livid; hemorrhages from the intestines occur, and what is vulgarly called black jaundice comes thus to be established.

Causes.—May be due to diseased pancreas, or pylorus, or stomach, or other derangement of structure about these parts. Sometimes the mere collection of hardened fæces in the colon will throw the bile back upon the liver and system, and thus occasion jaundice. Not seldom jaundice is occasioned without obstruction of bile, merely from a redundancy of its secretion, as in what are called bilious fevers, and now and then intense passion or feeling will produce the disease with or without painful spasm of the gall ducts, or rather, perhaps, of adjacent parts. With respect to the rationale of the altered color, it is evidently produced by bile mixing with the blood and secretions, but whether this blood gets into the system, partly by regurgitation, or altogether by absorption, is not perhaps quite evident.

Diagnosis.—The yellow color of the skin and deficient yellowness of the fæces and high color of the urine are the characteristic features of jaundice. The pain from gall stones or spasm, is distinguishable from inflammatory pain by the number of pulsations never corresponding with the degree of the pain. From the pain of nephritis and urinary calculi, see under that head.

Prognosis.—The disorder usually terminates favorably, unless occasioned by hepatic or other organic disorder. The favorable symptoms are, the skin and fæces acquiring their usual color, and a degree of diarrhœa occurring upon the cessation of pain; universal itching following the painful prickly sensation of the surface, and the urine becoming of a lighter color. The unfavorable symptoms are a tendency to livid appearance on the surface, vertiginous and other affections of the head, hemorrhages from the bowels, and anasarca swellings. Much perspiration, too, of a collequative kind is generally a bad omen, and the pulse from being hitherto natural and slow, becoming hard and frequent.

Treatment.—It is a good plan in the beginning of our treatment to give a thorough emetic of the comp. powder of lobelia, to this add ten drops fld. ext. dioscorea to each dose, an alcoholic bath, then clear the alimentary canal with:

<i>R</i> —Podophyllin.....	grs. xx.
Sugar of Milk.....	grs. xl.

Make twenty powders, and give one every three hours until they act freely. If there is much nausea and griping, give a teaspoonful of bicarbonate of soda in a glass of water. Then give:

<i>R</i> —Nitro-Muriatic Acid, Dil.....	℥ j.
Aqua Pura.....	℥ viii.

Dose.—One teaspoonful every three hours; use baths of vinegar and water daily. Establish convalescence on:

<i>R</i> —Fld. Ext. Populus Trem.....	} aa.
“ “ Prunis Vir.....	
“ “ Coptis.....	
“ “ Chionanthus.....	
Glycerine.....	℥ xii.

Dose.—One teaspoonful three times a day.

PANCREATIC AFFECTIONS.

Diseases of the pancreas have elicited but little attention, partly from their rare occurrence, and partly from the difficulty of recognizing them during life.

Besides hydatid tumors, cystic tumors, concretions of calculi, etc., this organ is sometimes the seat of cancer, as well as of inflammation. Scirrhus is generally met with as secondary to cancerous deposits in neighboring parts, especially in the liver. It may exist without any increase of size, but more generally it is considerably enlarged, and may adhere to some adjacent organ and terminate fatally before ulceration has commenced. There can be but little doubt but that many cases that have been pronounced scirrhus were merely chronic inflammation of the areola tissue of that organ. It may be distinguished from cancer of the pylorus by the absence of the gastric disorder always occurring in the latter affection.

Acute Pancreatitis, generally accompanied by dull or rather acute, deep seated pain below the pit of the stomach, extending below the left shoulder blade, augmented by the patient bending forward, but not much affected by pressure; a feeling of constriction at the præcordia; dryness of the fauces with great thirst, and symptomatic fever. In the chronic variety the symptoms are less easily recognized still, generally, whilst there is an absence of these met with in the acute form, or some of them existing, but in a less degree, however, flatulence, dyspeptic symptoms and pain in the back are not uncommonly complained of. When it occurs as a primary complaint, it soon extends to the duodenum, stomach or liver. Chronic inflammation, causing enlargement of the head of the pancreas, is very apt to be confounded with aneurism of the aorta. The pulsations of the aortic tumor will enable us to discriminate the one from the other. The existence of adipose matter in the fæcal discharges, associated with our suspicions of a tumor in the pancreas, will render our diagnosis the more certain, and that the tumor is pancreatic. It will readily be conceded that an enlarged pancreas may obstruct either the pylorus or duodenum when it may be very difficult to distinguish from cancer of the pylorus. The pancreas may likewise become the seat of the fatty degeneration, atrophy, as well as of one or other of the consequences of inflammation.

SPLENITIS—INFLAMMATION OF THE SPLEEN.

Pyrexia, tension of the left hypochondrium, with heat, swelling and pain upon pressure; no symptoms of nephritis being present.

Symptoms.—This disease often exists, perhaps, when it is not suspected. Together with the signs mentioned in the definition, there is, sometimes more diffused pain extending towards the left shoulder, with stomach irritations and derangements, and often with hæmesis or vomiting of blood. Splenitis, like other visceral inflammations, is either acute or chronic, and often, indeed most generally, the diseased state is constituted of a congestive sub-inflammatory

condition of vessels that tend towards, but is actually under the grade of real inflammation.

Causes.—Those of visceral inflammation generally. Protracted intermittents were formerly considered as tending to induration of the spleen; these however, are not common, now that the secretions are more attended to in the management of disease.

Diagnosis.—From hepatitis, with which it is often confounded and sometimes connected, by the seat of the pain and enlargement. From nephritis (with which it also occasionally connects itself) by the absence of those marks that are peculiar to the kidney affection.

Prognosis.—Mere chronic induration of the spleen may last for years, and, by judicious treatment be eventually, in part, subdued without occasioning much inconvenience. Even active inflammation of the spleen does not tend so rapidly to disorganizing terminations as that of some other viscera, perhaps from the power the organ possesses of working its own cure by spontaneous discharge from its large and numerous blood vessels.

Treatment.—It will be well to give an emetic of comp. powder of lobelia, follow with an alcoholic vapor bath, and give :

℞—Podophyllin grs. iv.
 Leptandrin grs. viii.
 Soft ext. Boneset to mass.

Make eight pills and give one to two at night. Apply over the region of the spleen a lotion of :

℞—Bromide Potass. ℥ iv.
 Muriate Ammonia ℥ i.
 Aqua ℥ viii.

Rub well in and cover with flannel, or oil silk. When the urgent symptoms have passed, put your patient on a thorough alterative course of treatment: syr. iris versicolor comp. before each meal; tinct. cinchona comp. after meals, etc.; good, nutritious, unstimulating diet.

ENLARGEMENT OF THE SPLEEN.

Enlargement of the spleen as a sequel of inflammation is often met with, and is attended with more or less constitutional disturbance. The enlargement often results from frequent attacks of intermittent fever, and is known as ague-cake in common parlance. I have often met with cases where the enlargement extended nearly half around the person. It is easily distinguished by the seat of the tumor—left hypochondrium, by its conformation and the history of the case. Moreover, those so affected have a singular, sallow and unhealthy appearance, anæmic condition of the oval mucous membrane and of the gums, with a dingy appearance of the conjunctiva. The digestive organs are deranged and the bowels are irregular, with dark colored stools, general languor and muscular debility. In chronic cases dropsy may ensue, also, præcordial dullness either from altered condition of the blood, or from the en-

gorged spleen displacing the heart upwards, thereby interfering with the free motions of the left lung. The enlargement has been so large as to have occupied half of the abdomen; in such cases the general debility is very characteristic; the structure of the organ may either remain intact, or it may be the seat of cysts, or any of the affections to which the pancreas is liable. Hydatids in the spleen is of rare occurrence, and schirrus even more so, in fact it seldom if ever occurs, save as a secondary to its seat in some other organ.

Treatment.—If the result of ague, give the treatment under head of intermittent fever: say, two grains of quinine two or three times a day. Keep the bowels well open with the podophyllin comp. In all cases we shall find an active alterative course demanded. The syr. iris versicolor comp. before meals, with tinct. chloride of ferri after meals, will be found valuable.

DISEASES OF THE ABSORBENT LACTEAL AND LYMPHATICS, OR DISEASES OF THE BLOOD.

The great distinction between organic and inorganic and inert matter consists in this, that the former possesses the power of converting exterior matter into a part of itself, which is not the case with the latter.

Matter destitute of the living principle continues to preserve its form and substance, without receiving anything from what is around it, and without necessarily undergoing any internal change, and when change is wrought in it by chemical agency, it then becomes a new existence; but organized bodies are constantly converting such supply from without, are as constantly converting such supply into themselves, are therefore momentarily undergoing mutation, and yet throughout preserve their form and identity. The medium through which these changes are operated is the blood; but it is by the system of absorbing vessels that this blood is preserved in a condition both as to quantity and quality to effect these vital agencies. The food, which is taken into the stomach is first converted into chyme, then it is further manufactured into chyle; this chyle is poured into the thoracic duct; the thoracic duct gives it over to the blood, and thus is performed, at any rate, the main part of digestion, chymification, chylofication, assimilation and eventually sanguification. But the aliment or ingesta is not the only matter which the circulating blood receives. Something is continually thrown out by terminal arteries, or by other modes, part of which, at least, is again received into the circulating mass. The individual who knows anything of historical anatomy, if I may so express myself, knows that the process of return into the blood of matter thrown out from it, and of taking up new matter with which to supply the blood with fresh fuel, has been of late years ascribed to a distinct system of vessels named the lymphatics; in fact, to these, and to the chyloferous absorbents or lacteals have been, for the most part, attributed the whole of organic support and supply.

More recently, however, there have been many objections started against the doctrine of lymphatic absorption, as held by the majority of physiologists in this country; and I must confess it does appear to me that the experiments and reasoning on this head of many of them, in some measure, warrant the conclusion they have come to respecting the existence of other absorbents than those vessels which we have been accustomed to consider as exclusively endowed with this faculty. There is great difficulty in understanding the venous circulation, or rather the consuming point of this part of the circulation. Darwin has long since expressed himself in reference to this point in the following terms: "As the imbibing mouths of the absorbent system open on the surface, and into the large cavities of the body, so there is another

system of absorbing vessels which are not commonly esteemed such, I mean the veins which take up the blood from the various glands and capillaries after their propelled fluids or secretions have been separated from it."

A direct communication had been also inferred from injection between the sanguiferous and lymphatic system of vessels; and the physiologist, whose opinion I have just cited, proceeds to say: "The veins resemble the other absorbent vessels, as the progression of their contents is carried on in the same manner in both, they alike absorb their appropriate fluid, and have valves to prevent regurgitation.

"This appears, first, because there is no pulsation in the very beginning of the veins, which must happen if the blood was carried into them by the action of the arteries.

"Secondly, the venous absorption of the blood from the penis, and from the placenta of female animals, is still more similar to lymphatic absorption, as it is principally poured into the cells where all arterial impulse must close."

I have often wondered that physiologists do not give more attention than they do to the particulars connected with this extravasated part of circulation, if it may be so called, nay, it should seem there is a sort of extravasation going on by deposits of a portion of the blood, even in parts that are not thus obviously cellular; and I repeat that the mode of interchange between artery and vein demands still more minute investigation than it has received from the industrious and ingenious enquirer into nature's laws.

The suggestions just alluded to go principally towards the proof of a power to absorb in the open mouths of the veins. Modern physiologists carry their assumptions still further, and maintain that there is a sort of inlet through the coats of the vessels themselves, which they have endeavored to show is the case by laying bare portions of veins and making them come in contact with fluids from without, by which impregnations have been communicated immediately to the contents of the vessel.

Atard has, indeed, very plausibly suggested that while there are subordinate sets of terminating capillaries, each devoted to its respective function, so there are similar sets of returning vessels, connected with the venous system, some of these directly terminating in the parietes of the adjacent veins, others uniting and forming independent trunks or absorbents; and, upon the whole, it is concluded that our usually admitted theory of lymphatic absorption is open to insuperable objections, both of a negative and positive nature.

In the first place, it is urged that the suddenness with which the secretions are sometimes effected is inconsistent with the notion of the course of absorbent fluids through the lymphatics and the thoracic duct. It is further stated that as the urine often proves tinged in a very short time with turpentine, rhubarb, copaiba, and other substances, while no such tinge is traceable in the lymph contained in the thoracic duct, it would seem that this channel is not their course to the kidneys. It is moreover urged that when the thoracic duct of a dog is tied, a decoction of nux vomica injected into the stomach or rectum kills as quickly as if the duct were pervious.

These and other experiments which the German, French and American

physiologists are at this moment engaged in, have led the objectors to lymphatic absorption so far, that some of them affirm there is no proof of the lymphatics possessing any other faculty than that of returning the lymph again to the heart; they assert that the only general absorbents are the veins (some include the arteries), while the lacteals are destined to convey into the system the nutritious portion of the ingesta received by the stomach.

The majority, however, of physiologists still continue their credence in the Hunterian doctrine of lymphatic absorption, which they maintain is not at all disproved by the objections that have been started, some of which are as old as Hippocrates himself. To the fact of impregnation being communicated through vessels laid bare, they urge that such vessel is, in some degree, by the experiment deprived of vitality, and percolation is admitted both from and into dead vessels. It is likewise said that experimenters too much overlook, in their inferences, the existence and agency of the *vasa vasorum*, or vessel within vessel.

To the argument drawn from the suddenness with which the urinary and other secretions are tinged while the contents of the thoracic duct are without the impregnation, it may be replied that so is the blood; indeed, the apparent presence or absence of principle in any part of the circulation proves nothing either way, when we recollect the circumstance formerly reverted to of the blood being destitute of any detectible poison while the system is under the influence of the most virulent of the morbid secretions. In the case of poison affecting while the thoracic duct is tied, it is stated that such is the immediate effect of these powerful agents upon the nerves that it is not necessary to suppose absorption at all for the production of their specific effects.

It has been also maintained that the experimenters who talk of detaching all portions of the lymphatic organization from parts and organs may not in reality have done so, and how can they consider the lymphatic vessels as being merely the channels of reconveying the watery parts of the blood to the heart, where we are able, in many instances, to trace clearly the course of poisons received from without, the syphilitic for example, through the lymphatics into their glands, and thence observe its effects on the constitution.

All, perhaps, that an impartial observer, weighing the evidence on both sides, will be inclined to say positively is this, that much remains both to be done and undone before the doctrine of absorption can be pronounced free from embarrassing difficulties, from whatever point of view we contemplate it.

Is matter received from without while the external skin remains unabraded? In other words, are we authorized in believing cutaneous absorption? To discuss properly this question would require much more space than I have to spare. I am inclined, however, to believe that the arguments adduced against the principle of cutaneous absorption, however plausible and forcible, do not fully substantiate the negation. But it should seem, at any rate, that the cuticle, while it retains its integrity constitutes a very considerable barrier against the entrance of extraneous matter. Lay the poison of a rabid animal on the surface of the body, or do the same with the small-pox virus, and you fail to inoculate the subject, while the most minute portion, probably, of either material,

certainly of the latter, will excite a commotion in the frame capable of transmission to an almost unlimited extent, when applied to an abraded surface, so that it is rather more than probable that the notion and apprehension of receiving fevers by contact is unfounded. When they do affect, it is, I believe, through the medium of the pulmonary and salivary organs.

LYMPH AND CHYLE.

"The liquid which lubricates the different cavities of the body, which is contained in the lymphatics and which occasionally forms the chief contents of the thoracic duct, is colorless, transparent, mixed in all proportion with water, does not affect vegetable hues, is not coagulated by acids or by alcohol, but only rendered slightly turbid by the latter. It has the character of a very weak solution of albumen."

"Chyle, like blood, possesses the property of spontaneous coagulation, it is deficient only in coloring matter, and the albumen it contains differs a little from that existing in the blood itself."

No distinctive difference is traceable in the chyle of graminivorous and carnivorous animals, a fact which is consistent with what I have before remarked as to the manufacturing power, if it may be so expressed, of vital agency, since nitrogen, which constitutes an abundant ultimate principle of the chyle of herbivorous animals, exists in very small proportions only in their ordinary food.

The other fluids, we may just state, that seem subservient to chyle's and, therefore, to blood formation, are the saliva, the gastric juice, the bile, and the pancreatic secretion; although neither the positive nor relative share which the above fluids take in perfecting the chyle is by any means demonstrated by our present degree of physiological knowledge.

It has been reasonably supposed that one chief use of the bile is to stimulate the lacteal vessels and maintain the peristaltic action of the alvine canal. Yet in jaundice the lacteals perform their office, and in lientery the peristaltic action is peculiarly brisk, though the intestines are without this fluid.

Hence, Dr. Fordyce regarded this bile as of no service whatever in promoting the digestive process, and Sir Everard Home has given an example of a child that fed heartily, seemed to digest its food well, and had regular stools, and was, nevertheless, without a gall bladder, or even a duct of any kind, leading from the liver to the duodenum.

And however stimulant the bile may be to the coats and emunctories of the intestines, it has a sedative, rather than a stimulative power upon the blood and instead of rousing to additional energy, produces weariness and inactivity. There are also a few other circumstances relating to the bile that stands in need of explanation. The hepatic bile, or that secreted into the hepatic duct, is mild and sweet; the bile found in the gall bladder is pungent and bitter; whence we might infer that it is the gall bladder which secretes the bitter principle. Yet in children the gall bladder bile is as sweet as that of the hepatic duct;

and in various insects a bile powerfully bitter is secreted without either gall bladder or liver.

Who shall develop the cause of these discrepancies? Who shall unfold to us the use of the bitter principle of the bile, or explain why it is necessary to the animal economy in an adult state, and not necessary in a state of infancy?

Some experiments have, however, recently been made on this subject, and it has been found that when the choledic duct was tied so as to completely prevent the bile from flowing into the intestines, "not the smallest trace of chyle was perceptible, either in the intestines or lacteals."

That the salivary secretion is subservient to digestion, and, therefore, to the manufactory and assimilation of chyle seems sufficiently certain, and the secretion which flows from the pancreas and is received by the duodenum appears to have a considerable connection in office with the salivary fluid; but still the altogether of digestive mutation, of chymification, of chyle production and separation of the effete from the nutritious portion of the alimentary mass, are not quite open to satisfactory detail.

A depraved condition of these organs, which are destined by nature for assimilation or elimination, may be present without either the nervous system or the blood vessels being primarily implicated. Disordered action in the absorbent, or secerning organization is the predisposing cause of disease of the blood. Now, there are two questions that present themselves, which at a glance may seem of easy solution, yet, upon second thought, are not easily answered. What is hectic? What is scrofula? We will endeavor to answer in a general way. Some individuals are so constituted, principally in reference to lymphatic organization and susceptibility, that any cause which produces derangement, or deviation from healthy action, fastens with more facility upon the part of the frame—the lymphatic—than any other, and these are they who, by common consent, are considered scrofulous. These are they, moreover, in whom hectic fever is soonest established, so much so that an acute observer may be governed in his recognition of scrofulous tendency by the readiness which hectic manifests to start up and accompany the progress of a disorder. Fully marked hectic is indeed, for the most part, a signal that local disorganization of a serious nature has established itself in some part of the body, and it is so general an attendant upon suppurative process as to have led some theorists to trace its essence into re-absorption of pus, which has been poured out from the blood vessels, but it does certainly show itself at times without any topical accompaniment, and does appear in some way or other to be especially connected with the lymphatic or secerning system. If two children be affected simultaneously with inflammation of the brain from the same exciting cause, and one of them has more of the scrofulous diathesis about it than the other, you will find in this one a readier disposition to hydrocephalic effusion. You will find his little cheek sooner painted by the hectic flush, and all things more rapidly tending towards a certain class as well as grade of diseases. Fill the stomach of two other children with food which, both in kind and quantity, shall make too large a demand upon the digestive and assimilating powers; in the one you will have common

feverish disturbance producing a sort of infantile remittent fever, which will rapidly pass off if left to nature alone, while in the other you will have a knotted protuberent abdomen, a hectic flush, or cast of red in the face, emaciated limbs, and in fact, *tabes mesenterica*—and why? Because in the last case the mesenteric glands, as part of the lymphatic or lacteal system, are continually obnoxious to ready derangement, and probably because there is not the proper absorptive process going on in the several secernments that are connected with the assimilating process.

There may not merely be a deficient quantity of the biliary and pancreatic secretion, but such diminution may be accompanied by a deficient stimulant property in these secretions, since from the inactivity of the absorbents their watery part is not readily absorbed, and thus the duodenum receives them in too dilute a state for functional demands. The emaciation of this child and its weakness are not induced in the same way as the weakness and want of flesh in the other. In the subject of remittent fever, the vascular and nervous system appear to have been more engaged with the disease, and the morbid process has been of a different nature.

The composition of healthy blood in one thousand parts, is as follows :

Water,	784.
Oxygen, Nitrogen, Carbonic Acid, dissolved in the water.	
Blood cells, Hæmatin, constituting the red corpuscles, . .	131
Fibrin,	2.2
Albumen,	70
Phosphate, Soda, Lime, Magnesia and Iron,	6
Chloride Sodium, Potassium, Silica.	
Fats, Marjorine, Oleine, Seroline, Cholestrine and Phospho- rated Fat,	1.3
Extractive matters and traces of Urea Creatine, etc., . .	5.5
	<hr/> 1,000

Now, when there is a wide variation from the above, we have diseased condition of the blood. When the red principle is in excess, we have plethora; when diminished, anæmia, etc.

These conditions are brought about by the absorbents—their activity or inactivity then may be received as the cause of blood disease.

Taking this view of the question of blood disease, if we are correct, their treatment is obvious, and no mistake need be made in the management of that important class of ills known as blood disease.

ANÆMIA.

This is a deficiency of red corpuscles in the blood, or impoverished condition of the blood. The red globules of the blood, in health, approximate to one-seventh part, or say about thirteen and one-half parts in one hundred of blood. In extreme cases of anæmia we have them reduced to 6, 5, 4, and as low as three and one-half to the hundred. The liquor sanguinis is deficient in albu-

men, but often contains an excess of salts. Although this extreme deficiency of the red principle exists in anæmia, there is never found any abnormal degeneration, or devitalized substance such as we find, for instance, in the blood of cancerous or strumous patients. No evidence of disease, only deficiency of blood discs, not having relapsed into a lower form of life.

Microscopic examination of the blood will enable us to decide in what ratio the deficiency exists.

Symptoms.—The absence of red corpuscles give us a diminished supply of the materials of growth and nutrition. This deficit weakens all the vital powers of the excretory viscera. The human economy needs continual repairs, ordinarily this is provided for by natural laws; but this power is so much impaired in anæmia that, if not properly stimulated, or aided, the whole machinery must stop, and death, as an inevitable result, must follow.

In anæmia we have a pale, waxy, dry appearance of that great gland, the skin, a bleached appearance of the mucous membrane, feeble pulse, weak, flabby heart, loss of appetite, etc.; the liver is sluggish, inert, and particles of bile, instead of passing through the regular channel, are taken up in the circulation to pass off through the skin, thus staining it and giving it that peculiar sallow appearance. The kidneys, through debility, imperfectly eliminate the urea, and a serious train of symptoms may ensue. Again, the debility of the kidneys is so great that the albumen passes off through them, still adding to the debility of the patient.

I have noticed the sounds of the circulation of the blood, in this class, and always find a peculiar bellows sound in the jugular vein, etc. This is exactly in proportion to the diminution of the red corpuscles.

This sound is continuous where they fall below eight to the one hundred. This thin, watery condition of the blood has a marked effect upon the heart, also upon the thyroid gland, which becomes greatly enlarged, and remarkable prominence of the eyeballs, all of which (*the enlarged throat, the weakened heart, the prominent eye-balls*) can be traced to the same cause. We often have attacks of fainting, shortness of breath, swelling of the extremities, dropical effusion in the pleura, pericardium or peritonium, amenorrhœa, occasional fatal sinking, etc. Every symptom is indicative of extreme debility, for want of the red principle in the blood.

Causes.—Anæmia is caused from a variety of circumstances, anything that will impoverish the blood; mental derangement, troubles, care, disappointment, anything that arrests the assimilating viscera, or diminishes the nutrition; hemorrhages; exhaustive discharges; leucorrhœa in women, sometimes produces anæmia; starvation, disorders of different kinds, poisons, anything that reduces the vital powers.

Diagnosis.—The main point in diagnosis of anæmia is to determine the cause upon which it depends; if connected with uterine trouble we shall, generally, have some well-marked symptoms to guide us, and enable us to form a correct opinion as to cause. Chlorosis is always attended with anæmia, and we always have some extreme nervous irritation which is very often absent when from other causes than uterine derangement. Now, this being the case, the

principle of a cure is something to supply nutrition and remove the exciting cause.

Treatment.—This will consist in introducing, as quickly as possible, the largest amount of nitrogenous food—iron chloride, phosphorus, etc., into the system, thereby raising the standard of nervous vitality. Fresh, fat beef, eggs, milk, oysters, fish, as a diet, then iron to supply the anticipated new growth of red discs. A soluble form of iron is the best, and no better preparation can be found than the syr. hypophosphites of iron, soda and lime. Ter-chloride of carbon is excellent, and may be given with happy effect, five drops three times a day. The end and aim of all scientific medication is to build up, therefore we would give a sufficient amount of phosphorus in a soluble form three times a day. The cinchona comp. with dilute phosphoric acid and glycerine is excellent, not only for its therapeutic effects, but as a nutrient tonic.

To keep the bowels in a healthy, active condition, nothing acts better than nux vomica, ten drops of the tincture after each meal. Brandy, raw eggs, etc., are advisable. Abundance of fresh air, warm clothing, moderate exercise, salt water bathing, and salt internally.

PLETHORA.

As general anæmia may arise from defective formation, or excessive expenditure of blood, so general plethora may proceed from either too much blood being made, or from too little being expended. In either case the blood accumulates and fills the heart and blood vessels beyond the usual degree. But this implies a certain activity and health in the processes of digestion and assimilation, and also a freedom from any considerable local disorder. A person with weak digestion rarely becomes plethoric, and one who suffers from a local ailment is commonly warned by an aggravation of this before the fullness can become general.

The persons who become plethoric are rather those overflowing with health, who have a good appetite and indulge it, without a sufficient regard to exercise and to the excrement functions; and whose digestive powers are in full activity. The blood-making process is ever on the increase, the vessels becoming more and more filled; and their fullness becomes manifest in the red face, distended veins, and full pulse; the heart is excited, and labors with its load, especially on exertion; hence palpitation and shortness of breath may ensue, with somnolency and indisposition to exertion; but these may attract no further notice than to induce the abandonment of exercise. The state of plethora, thus gradually induced, may be extreme without any functions materially failing, and yet the subject is on the brink of various maladies. It is well if a great secreting organ is first excited under the high pressure, and relieves the system through a free discharge, as by mucous or bilious diarrhœa; or some unimportant and convenient set of blood vessels may give way, as in epistaxis, or bleeding piles, etc.; or one of the great secreting organs may fail in its proper function, as the liver or the kidneys; and a bilious attack, jaundice, or a fit of gout or gravel is the consequence. Any of these, by establishing a perceptible ailment

disturbs the dangerous case of the plethoric; and by rendering necessary a temporary discipline, saves him from the worst results of plethora—apoplexy, structural disease of the heart, great vessels, lungs, kidneys, or liver. Besides the causes already noticed, other circumstances may induce plethora. The diminution of a natural or habitual excretion or loss of blood, the drying up of a long-established sore or issue, or the removal of a limb; all of which diminish the expenditure from the system, without impairing the blood-making process, often become causes of plethora, if no local disorder be excited before the vessels in general reach a plethoric tension.

The division of plethora into *sthenic* and *asthenic* arises from different proportions of the strength and irritability of the moving fibre.

Sthenic plethora is that which commonly affects the young, the active, and those of sanguine temperament. It comprehends a rich state of the blood, and an active condition of the nutrient function. Its tendency is to cause general febrile excitement, active hemorrhages, fluxes and inflammations.

In *asthenic* plethora there is a want of contractibility and tone in the moving fibre. The heart and other organs, instead of being excited by the augmented quantity of blood, are oppressed by its load. The pulse may be full, but it is slow; sometimes irregular or unequal. There is sometimes a tendency to faintness alternating with palpitation; physical examination shows the heart to be enlarged by the accumulation of its contents, which it cannot expel. The face is purple rather than red; the veins are generally distended; sometimes the extremities are apt to become cold. Other functions are sluggish, and imperfectly or irregularly carried on. The bowels are torpid, the urine scanty, high colored, or turbid, sensibility is blunted, and the mental faculties dull, with lethargy or somnolency, the spirits often depressed and the strength reduced.

The mere stagnation or imperfect motion of the blood will prevent it from undergoing properly the process of purification and elimination of its decaying materials, through the instrumentality of respiration and excretion; hence, it becomes loaded with urea, lithic, and lactic acids, and other *effete* materials, which unfit it for its proper uses, and irritate and disorder the organs through which it passes. The process of reaction or febrile excitement, which occurs in cases of *asthenic* plethora is sometimes more distinctly connected with the condition of the blood, as the case of gout, rheumatism, and various cutaneous diseases, which become developed generally in the atonic or *asthenic* forms.

In plethora all the organic functions are more actively performed. There is a remarkable disposition to exaltation in the cerebral functions; the emotions are frequent and very mobile, without, however, those exaggerations and aberrations of sensibility, those nervous predominances which almost constantly occur in anæmia.

Plethoric persons are liable to certain accidents, as vertigo, dimness of vision, ringing in the ears, and heats in the head. These symptoms have been unusually attributed to cerebral congestion, a condition which has, however, never been ascertained. Andral thinks these phenomena sufficiently accounted for by the passage of an increased quantity of red corpuscles through the vessels of the brain. It is strange that, as we have seen, opposite conditions of the red

corpuscles as regards quantity, produce analogous phenomena. Plethora predisposes to hemorrhages. The *bruit de soufflet* never occurs in plethora, as has been erroneously stated.

Treatment.—In plethora we should get up an active condition of the secretions. Give:

R—Podophyllin	grs. iv.
Bitartrate Potass	ʒ ii.

Make four powders and give one night and morning until the liver and bowels act freely:

Restrict the diet, and the hours of sleep to six in twenty-four; inculcate exercise in the open air; daily baths with friction to the whole surface. When the plethoric condition is chronic, we should put the patient on the stillingia comp. with iodide potass., at same time a diaphoretic and diuretic to act on skin and kidneys.

PIARRHÆMIA.

Milkiess of the serum or fatty blood is met with in diabetes, alcoholism, disease of the liver and kidneys, especially in Bright's and Addison's disease. The presence of free fat and molecular albumen in the blood may also be the result of digestion, pregnancy, lactation. In the process of digestion the lactescence of the serum begins at about two hours after the ingestion of aliment and continues for a few hours.

The serum is found turbid, opalescent, a condition, however, only transitory, and due to the absorption of fatty matter, formed into an emulsion by the pancreatic juice, and absorbed as such in the duodenum. It is entirely due to the presence of fat globules, and molecular granules of albumen.

The chyle renders the serum of the blood turbid, and this turbidity lasts until the insoluble fatty matters enter into combination with the free soda of the blood. This condition is often the pathological result of disease.

Various explanations have been offered as to the occurrence of fatty blood in disease. Some attribute it to passage of unaltered chyle in the circulation; others that the fat is set free in the blood for the want of a free alkali; while another class maintain that it is a fatty degeneration of the albumen of the blood; while others insist that it is a dependent upon a new combustion of fat. Never do we find it existing as an independent affection, invariably associated with kidney or hepatic affections.

GLUCOHEMIA.

A saccharine condition of the blood—a condition in which we have sugar present in all the secretions of the body. This may be due to various causes, as in certain depressed conditions of the stomach we have the starchy elements of the food converted into other compounds and absorbed into the blood. Sugar is a normal secretion of the liver, but if there is an irritation of the eighth

pair of nerves at their origin in the fourth ventricle, sugar is generated in such abundance that the oxygen in the lungs is incapable of burning it up; hence it is thrown back into the system and eliminated by the tears, saliva, sweats, stool, urine.

In health the sugar formed by the liver passes into the hepatic veins, the inferior vena cava, the right cavities of the heart, and thence by the pulmonary artery to the lungs where it is consumed; but when irritation exists the sugar is in excess, and the lungs are incapable of using it.

The irritation may be in the liver or brain, but more frequently in the stomach, the irritation being reflected by the pneumogastric to the brain, from thence transmitted to the liver, causing it to secrete sugar, or a glucogenic substance,

URÆMIA.

A poisoning of the blood, following some diseases, in which albuminuria is in excess—cholera, scarlatina and diabetes. Uræmic poisoning is due to an excess of urea in the blood, and its transformation into carbonate of ammonia in the blood. The effects of the disease are plainly visible upon the spinal cord and brain.

Symptoms.—We have stupor, and difficulty of arousing the patient at all, complete coma, stertorous breathing, with all the symptoms of opium poisoning. In another variety we have epileptic convulsions, affecting the entire muscular structure, while the mental faculties remain intact. We have a great many cases where coma and convulsions are combined. The convulsions that occur during gestation in females is due to pressure and renal congestion—want of power in the kidneys to act so as to throw off the impurities.

Suppression of urine is a common result of cholera and other poisons in the blood. We have cases where the uric poisoning is so great that the whole secretions of glands, skin, etc., partake of the nature of the poison, and have the odor, taste, and appearance of urine. When it is the result of inflammation of the kidneys, we have skin hot and dry, thirst, nausea, vomiting, rapid pulse, tenderness of the abdomen on pressure, swelling, burning, pain in the region of the kidneys, constant inclination to urinate, with great pain on each attempt; urine taste in the mouth; urinous odor of the sweat; great anxiety and uneasiness. In total suppression the symptoms will be much worse; all the evidences of poisoning, cerebral derangement, with retraction of the urethra, hiccough, pain in the head, delirium and coma.

Treatment.—We must give active cathartic.

R—Phodophyllin	aa.
Leptandrin	gr. iiii.
Bitartrate of Potass.....	gr. xxx.

Mix.—Make into three portions, and give one every three hours until they act freely upon the bowels. Then follow with nitro-muriatic acid dil., fifteen

drops every four hours, in sweetened water. Hot, or vapor baths to keep the skin acting. Restore the action of the kidneys with:

R—Fld. Ext. Buchu Comp..... $\frac{3}{4}$ ir.
 " " Eupatorium Purp..... $\frac{3}{4}$ ss.

Dose.—Thirty drops once in three hours.

PYÆMIA.

This is a morbid state of the blood caused by the introduction into it of putrid matter which is usually followed by severe constitutional disturbances, as well as inducing suppuration in important organs.

Pyæmia is particularly dreaded by obstetricians and surgeons, since it not unfrequently is the cause of very dangerous symptoms after parturition (*puerperal fever*) and surgical operations. It may display itself in more ways than one. Thus, in some cases, the patient seems to be so immediately and deeply affected by the morbid matter that he dies before any local phenomena can be developed.

In a second class the intensity of the poison seems to be exerted upon the liver or the mucous membrane of the intestinal canal; in the one case nature appearing to make efforts at elimination by the discharge of a large quantity of dark bile, in the other by severe attack of diarrhœa or dysentery.

Then there is a third class of cases where the serous membranes bear the brunt of the poison, and we have pleurisy, or pericarditis or peritonitis, or the cutaneous surface is the part affected, and we find erysipelas or a more or less copious eruption of boils.

And again, there is a fourth class in which profuse suppuration ensues, giving rise to *secondary* or *metastatic* abscesses in the lungs, liver, joints, eyes, etc.

Among the various forms of suppuration is that caused by inflammation of the cellular tissue. From punctured wounds in dissections some animal poisons are very virulent, such as the poison of erysipelas, puerperal peritonitis, gangrene, inflammation. The bites of venomous reptiles and insects, also the poison from the bite of an enraged man produces grave, nay, serious results. The poison thus absorbed gives rise to inflammation of the cellular tissues and absorbents generally of the wounded parts.

The lymphatic glands become implicated. The skin over the affected part is pale, tissue shining, while the swelling which occurs communicates a boggy feeling to the touch. These inflammations are attended with severe rigors, extreme restlessness, great pain and prostration. They are often fatal, either in a few days or weeks. Death is preceded by delirium, fetid perspiration, jaundiced skin, constriction of the chest, stupor, coma. The effluvia emitted from the dead body may cause extensive toxæmia by acting upon puerperal patients. Our prognosis in purulent absorption is very unfavorable.

Treatment.—In the treatment the powers of life should be well sustained—an attempt made to purify the blood, and full incisions made over affected parts, followed by poultices of charcoal, capsicum and yeast.

Strong beef tea, free stimulation with brandy, anodynes to subdue pain.

Elimination of the poison by frequent sponging, acting freely upon the liver with podophyllin and leptandrin. Yeast should be given freely in milk, all symptoms closely watched and met. In all wounds or bites of animals, ligate above and below the part, suction, apply warm water to encourage free bleeding, followed by touching it with caustic potass., then a poultice of lobelia and iris versicolor.

ANGUOLEUCITIS.

Anguoleucitis, or inflammation of the lymphatic vessels, is the result of injury, or the absorption of some morbid matter, such as dissection wounds, scratches, and abrasions, and coming in contact with lochial discharges, unhealthy sores, cancers, etc.

Symptoms.—These are always well marked. Among the first that attract our attention, are bright red streaks, running upward from the wound, in the course of the absorbents, to the gland in which the vessel merges. These streaks are tender to the touch, and soon attended with stinging pains and draw like hard cords. The glands in connection with affected vessels become involved, swollen and are attended with hard acute pains; the whole limb becomes puffy, hot and extremely sensitive. Constitutional disturbance, chills, rigors, vomiting, constipation, restlessness, mental and bodily prostration. With good treatment it may terminate in resolution, or suppuration; sometimes in chronic induration.

Treatment.—Everything depends upon the prompt action of remedies. In these cases I have found an emetic of lobelia and cayenne pepper one of the best medicines to begin with. After the action of the emetic, use a bath of strong alkalies—soda, lime, or even weak ley. Follow up with ten grains sulphite of soda every three hours, alternate with :

R—Tr. Cinchona Comp.....	§ iv.
Phosphoric Acid Dil.....	§ ss.

Dose.—One teaspoonful, in sugar and water, every six hours. Regulate the bowels with :

R—Phodophyllin	gr. iii.
Leptandrin.....	gr. x.
Bi-tartrate Potash	§ ii.

Make six powders, and give one morning and night. Keep the wound well bathed with a solution of sulphite of soda, and covered with oil silk. The diet must be light and nutritious—beef tea, milk, eggs, or brandy and eggs. The drink to allay thirst may be acidulated with lemon or lime juice. I am inclined to the opinion that nothing is better calculated to relieve, or antidote, this trouble than a free use of sulphite of soda, both locally and internally, until the urgent symptoms have disappeared. Establish convalescence on a good nutritious diet, and give :

R—Fld. Ext. Sanguinaria.....	}	aa.
“ “ Hydrastis Can.....		
“ “ Alnus Rub.....		
“ “ Leptandra.....		
“ “ Angelica.....	}	§ ss.
Port Wine.....		
		O ii.

Dose.—One tablespoonful before each meal.

EMBOLISM.

A highly deranged condition of the blood. Met with in croup, diphtheria, scarlatina, typhus fever, erysipelas and some other diseases of an inflammatory or contagious type. It is sometimes developed during pregnancy. In this condition, the blood is disposed to coagulate (clot) and stick to the walls of the blood vessels, or remain in the centre of the heart. These small coagulations are sometimes carried forward through the larger vessels, and block up the smaller veins; in fact, there is no part of the circulation exempt from having these clots stop and block up the vessels. This is a frequent cause of sudden deaths, for many instances of which it is so hard to account, especially after labor and diseases, upon which this fibrinized condition is attendant. I have seen large clots on the brain, lungs, and liver of a patient who died from this condition of the blood. The diagnosis is difficult, the symptoms so variable, that we can hardly enumerate them here, so as to be certainly understood.

Treatment.—Perfect rest in the recumbent position should be rigidly enforced, a good nutritious diet, milk, eggs, soup, oysters, etc. Give the following before each meal:

R—Bromide Ammonia..... ʒ ij.
Aqua Pura..... O i.

Dose.—One teaspoonful. After meals (say two hours between the two doses) give:

R—Sulphite Soda..... ʒ ii.
Aqua Pura..... O j.

Dose.—One teaspoonful in half a wine glass of water. In making these two prescriptions, get distilled spring water, or filtered rain water, as pure water is essential to avoid neutralizing the effects, especially upon the sulphite soda.

LEUCOCYTHEMIA.

The red principles, or globules, in the blood are round, very small discs, floating in a colorless fluid called liquor sanguine or serum.

In some conditions we find these globules diminished, as in anæmia we have a great deficiency.

In health there should be eleven to thirteen parts in one hundred parts of the blood, but in some cases I have seen them as low as three, on the other hand, in plethora, they are increased to fourteen or fifteen parts.

There is scarcely any condition that might be mentioned, that would not influence the vital fluid. It may be emphatically asserted that change of health, temper, food, emotion, air, variation, etc., has its effects upon the blood.

An excessive use of vegetable acids will deteriorate the blood, while eating freely of fresh animal food increases the fibrine and richness of the blood predisposing to disease.

If we have unhealthy blood, the smallest cut or scratch will ulcerate, and eruptions of the skin, scrofula, scurvy, or some other morbid condition appear. Eating and drinking is, no doubt, a fruitful source of blood disease. Imperfect action of skin, kidneys, and liver, is among the principle cause of blood disease. Perfect health requires the perfect performance of all the functions of depuration.

When we have the red principle diminished, we have an impaired condition of the nervous system, and some special degeneration, especially in females. We meet with some cases where the blood discs, or globules, elaborated are entirely white; this is what we term a white cell condition of the blood, and is, in a measure, due to a disease of the spleen. The spleen acts as a sort of safety valve in equalizing the circulation; this, with the lymphatics, exercise an important part in the elaboration of the vital fluid. In many of the morbid, unhealthy conditions, the red principle of the blood is diminished, until we have that palor, anæmia, debility, disordered circulation, depression, hemorrhage from nose, lungs, stomach jaundice, anasarca or dropsy; sudden death, rupture of heart, etc.

Treatment.—Everything that will aid in toning up and bracing the patient will be of utility; nourishing diet, stimulants, salt water baths, warm clothing. In other words, give a good blood-creating diet, and the syr. hypophosphites comp. one teaspoonful before each meal, with:

R—Tr. Cinchona Comp.....	} aa.
Nitro-Muriatic Acid Dil.....	
	3 j.

Dose.—Twenty to thirty drops after meals.

SCROFULA.

Scrofula is a peculiar disease, of an inflammatory character, arising in debilitated constitutions of a peculiar habit. You will find that scrofulous diseases are inflammatory, that they undergo all the different processes of inflammation, the adhesive and suppurative processes, ulceration, and gangrene; but gangrene less frequently than any of the others.

The inflammation attending scrofula differs materially from common chronic inflammation. Connected with the latter, there is certain debility, but that debility is the result of intemperance, or change of constitution; whereas in scrofulous inflammation, the weakness exists from birth, and the four usual terminations are imperfectly performed.

The *adhesive matter*, secreted in scrofulous affections, instead of being firm, consists of a curd-like matter, easily broken and very soft, and this is owing to the blood vessels not entering it. The *suppuration* is not of the common kind, it contains curd-like matter, and is not truly purulent; *ulceration* is slow in its progress, and granulations are unequal and slow in forming. The age at which scrofula manifests itself is during growth; it is extremely rare for it to occur after.

Symptoms.—In scrofulous children you will generally find they are characterized by the following symptoms: thin, delicate skin; rosy countenance; light colored and fine hair; long eye lashes; dilated pupils; clubbed fingers; and a thick upper lip; also small limbs, large abdomens, weak spines, prominent chests, large heads, and are liable to ulceration, convulsions, dropsy of the brain, cholera infantum, consumption of the lungs, consumption of the bowels, etc.

Again, those who are the subjects of scrofulous diseases often have follicles on different parts of the body, incrustated with inspissated matter.

Scrofula modifies diseases, but makes them difficult to cure. It attacks every part of the body, but chooses the weakest point, which becomes the centre of scrofulous affections.

The absorbent glands and joints are most frequently attacked; the lungs and the brain not unfrequently. The secreting glands are very rarely affected by it, at least the liver and kidneys, for the testicles and breasts are often exceptions.

Scrofula differs in different constitutions; it may be of an indolent or irritable kind, but more frequently of the first than the second. Scrofula of the irritable character is a dreadful disease, for, joint after joint, and various parts of the body become inflamed, whilst in indolent habits the disease is sometimes confined to a particular class of parts, and the rest are excluded. Let some over-excitement, over-action or irritation, cause a determination to the brain, and we have tubercular meningitis, effusion of tubercle, convulsion and death. Let there be irritation of the bowels, as diarrhoea, cholera infantum, and we have tabes mesenterica, or tubercles of the bowels, irritation of the elbow, knee, wrist, or hip, and we have white swelling, or coxalgia (hip joint disease). Scrofula prevails more extensively in temperate latitudes than in very hot or very cold climates.

There is, at present, an unprecedented increase of the scrofulous diathesis in America—among a nation that possesses every comfort and luxury of life; and this increase can only be accounted for by the increased activity and excess in the generative functions, which is due to the stimulants, literature and amusements of the present age.

You will find scrofula considerably influenced by climate, particularly those climates in which the change from cold to heat, and heat to moisture, are most frequent, and on this account portions of our own country are favorable to the production of scrofulous disease. It very frequently occurs that children born in warm climates and subsequently removed to a colder climate perish from scrofula.

Although we have proof of some climates predisposing to this disease and favoring its production more than others, yet the most striking effects are manifested by the changes of the seasons after scrofula has occurred. Thus, for instance, if a child with scrofulous disease be examined in the spring, and it has a gland that is inflamed, the disease will go on during the spring till the summer months, when it will be arrested and the health of the child improved. In this state it will remain until October and November, and then the child will

become worse. From this circumstance a physician either gains or loses credit in the opinion of the parents according to the seasons he may first be called upon to administer medical advice.

A morbid condition as before stated may be hereditary or acquired; it may be developed and then transmitted. Children are born predisposed to tubercle, if their parents have had syphilis or been licentious. Again, disparity of age has a like effect—one old, the other young, or if near relations marry, also the offspring of those who have been severely drugged with mercury. You may prevent scrofula by care, but that some children are originally predisposed to the disease there cannot be the least doubt, and in such cases the education and the habits of youth should be so directed as to ward off a disease the effect of which is so frequently fatal. Although scrofula is an hereditary disease, there is sometimes a singular intermission in its being developed. Thus it will occasionally pass over in one generation and appear again the next, so the grandfather and grandson (the first and third generations) shall both be scrofulous, while the intermediate one which holds the more intimate relation of father and son, and connects the two others together, should be exempted from any development of the disease. Scrofula is not communicable from one person to another, neither can it be conveyed into the system by inoculation, but scrofulous nurses may infect children through the milk.

Causes.—The *predisposing* cause of scrofula is congenital, or consists in an original fault of constitution. The *exciting* causes are those which tend to produce or rather increase that debility; such as fever of a specific kind, as measles, scarlet fever and small-pox. Excesses in the amative embraces of parents produce scrofulous offspring. This offspring, inheriting the depravity of passion and blood, develop disease by the former, and thus the work of death goes on. Incompatibility of temperament is also a prominent cause, and in the city want of light, pure air, the use of poor food, pork, constant drugging, poison, whisky, etc., are among the train of causes that produce the strumous or scrofulous diathesis. To prevent this wide-spread disease, the common people must learn the immutable laws of life, then the cause will be abolished. Abolish poverty, filth, vice, or immorality, drugs of a poisonous nature, in a word every thing that degenerates humanity. The higher the standard of morality and education the higher order of manhood we have, both physically and mentally.

Treatment.—The principles on which the treatment of scrofula should be founded are three: First, to make better blood; secondly, to strengthen the solids, and thirdly, to give vigorous action to the circulation. To one or all of these principles, every mode of treatment should be referred. The action of the heart and arteries is naturally feeble, the serum of the blood preponderates, whilst the fibrous portion is deficient in quantity, therefore you must fulfill the indications just alluded to. The two first indications are to be fulfilled by paying particular attention to the diet. In diet, nutritious food, pure, simple and healthy, taken in small quantities and often—digestion goes on better when the stomach is not much loaded. Animal food should be given in larger quantities to persons with scrofulous disease than to those in a state of health, always ex-

cluding swine flesh. The last indication may be more especially answered by a due attention to exercise and air. Next in importance to nourishment is exercise. Children with scrofulous affections or even those predisposed to them should take a great deal of exercise in the open air; but it should not be carried so as to fatigue the body, for when they feel themselves weary they should rest a little till they recover. The old school practitioners give mercury to overcome this diathesis, and this tends to increase its ravages.

The three remedies I have just mentioned are of chief importance, and calculated to promote elaboration of pure, healthy blood.

R.—Glycerine ʒ xii.
Phosphoric Acid Dil ʒ iii.
Tr. Nux Vomica ʒ j.

Dose.—One teaspoonful before each meal. Shake well, so as to thoroughly combine it. This may be alternated with syr. hypophosphite comp. In this, as in other diseases one remedy long continued loses its effect. After meals give :

R.—Fld. Ext. Iris Versicolor ʒ j.
“ “ Corydalis For aa.
“ “ Rumex Crisp ʒ ss.
“ “ Cinchona Comp aa.
Alcohol ʒ ii.
Syrup Simplex ʒ x.

Shake well, and give one teaspoonful three times a day, half hour after meals. At night, to promote sleep and purify the blood, give fluid extract phytolacca, ten drops before retiring.

Keep the bowels regular, say at least one action a day. Keep up the treatment, at intervals, for months, and you will eventually overcome the diathesis.

SCROFULOUS AFFECTIONS.

Having given you a general description of scrofula, I will now proceed to treat of the several parts attacked by this disease.

GLANDS OF THE NECK.

Of the different absorbent glands, those of the neck are most frequently affected by scrofulous diseases, owing to their being so much exposed, and consequently so much influenced by the changes of the weather and the seasons. Now, when you are consulted in a case of this kind, the symptoms you will find are as follows :

Symptoms.—In the first place you will learn from the child's mother that she at first observed a swelling in the neck, which was small, hard, and not painful, nor in any way discolored, but tender to the touch. Thus the inflammatory process does not go on to the rapid destruction of the part, for the swelling will frequently remain in this state of indolence during weeks, months, and sometimes years.

It is a general character with these tumors to remain in an indolent state for

a length of time ; but owing to accidental circumstances, or changes in the weather, or the state of the constitution, the disease proceeds with greater rapidity. If it occurs in a person of an indolent habit, it will be slow in its progress ; if on the contrary the person be of an irritable habit, it will advance with rapidity. When suppuration takes place there is much pus produced ; its formation is characterized by the common symptoms of suppuration, but in a much milder degree than usually met with. In these cases the suppuration is weak and languid, and it is a long time before matter forms. The suppuration is very imperfect, the pus has not the true character of purulent secretions, it is composed of a curd-like matter, and resembles pus mixed with blood. When suppuration is about taking place, the skin at first has a blush of inflammation on it, then becomes of a livid or purple hue. It frequently happens when the skin is in this state a long time elapses before it gives way. When the skin, however, breaks, it generally separates to a considerable extent.

Treatment.—In the treatment of enlarged scrofulous glands of the neck, you must be regulated according to circumstances. If of recent occurrence, you must treat it like a case of common inflammation. Regulate the bowels with the syr. rhei et potass., and apply discutient ointment over the gland. This will sometimes arrest the progress at once.

These glands, however, are apt sometimes, notwithstanding all the means you employ, and all the care that may be taken of the child, to go into the suppurative stages.

Give the rhei et potass, and adopt the constitutional treatment directed under scrofula.

You must next consider what local treatment to employ if the gland suppurates. You find there is a disposition to suppurate, discutient ointment will not succeed, and therefore must be discontinued.

The moment there is the slightest blush on the part, and sense of fluctuation indicating the presence of pus, you should make a small opening with a lancet, as in a common abscess ; you should not wait for the skin to assume a livid hue, for then you will never be able to prevent scars.

Scars in the neck ought, by all means, to be avoided if possible, but the reason why they are so frequently met with is the surgeon waits too often until the skin has become livid, and then makes a puncture. In this case he gains nothing by making an opening into the gland ; in fact, if the skin be of a livid color, I advise you then not to make an opening ; apply poultices, and let nature effect the opening, for the scar will not be so great then as if you were to make it. When you are about opening these tumors, you must remember, first, the time at which you are to make the puncture, and the direction in which it is to be made ; and, secondly, do not omit to squeeze out all the solid matter that may be within the gland. The instrument with which I open these abscesses is a cataract knife, and I make the incision transversely, and just in the direction of the creases of the neck, so that when the wound heals no scar is to be perceived. When the matter is discharged by puncture apply your finger to the side of the swelling, and squeeze out all the solid matter that

may be contained in the gland. If the sac be not emptied of all the solid matter, this substance will keep up considerable irritation, and prevent the healing of the wound, therefore I wish to impress on your mind the necessity of attending to this point. If the wound be indolent afterward you had better inject into it a solution of myrica, one teaspoonful of fluid ext. to a pint of water. Throw a little of this into the wound, it will soon produce healthy granulations, and lessen the discharge, if it be copious.

With respect to the ulcerative process, there is nothing particular to remark; fomentations, poultices, and the ordinary means should be employed.

MARASMUS.

The glands which are affected with scrofulous disease next in frequency to those of the neck, are the mesenteric glands. In young persons they are most commonly affected at the age of six or eight months.

Symptoms.—The disease is known by the abdomen being tumid, and from the tenderness on pressure, attenuation of the skin, voraciousness of appetite; the limbs of the child at the same time wasting. The intestines are equally irregular, being sometimes relaxed, at others costive. In the stools are occasionally observed earthy matter composed of carbonate of lime.

Causes.—The causes which produce enlargement of the mesenteric glands arise from disease of the secreting glands of the intestinal canal, such as irritating food, which irritates the mouths of the absorbent vessels of the intestines leading to the mesentery. With respect to the effects of mesenteric diseases, they should consist at first in an interruption of the process of absorption. The chyle travels through the absorbents to the mesenteric glands, and when some of these are enlarged the chyle is interrupted in its course.

Treatment.—In this your main object must be directed to giving highly nutritious food, for absorption being to a great degree prevented, it is important nothing but what is very nutrient should be given, so that the constitution may be improved and supported. Animal food is more nutritious than vegetable food, therefore you give it in preference to the last, and prepared so that it may be easily digested—beef tea or essence, raw meat juice and chicken broth. When animal food is given it is desirable to give milk punch to stimulate the stomach to secrete the gastric juice and to excite the action of the intestines. In exciting the intestines you have a two-fold object in view, stimulating the absorbents and promoting the peristaltic motion of the intestines. In addition to nutritious food, it is well you should employ some tonic and alterative medicines, and external application to the abdomen.

In all cases of marasmus, we have nothing equal to the hypophosphites. If the case is not beyond reach we shall soon obtain good results from the administration of this agent. The curd-like vomiting, the green discharges from the bowels, and other symptoms, soon disappear.

Salt water baths are excellent, and should be resorted to daily. We may give, in connection with the hypophosphites, the following as a tonic, etc :

R.—Fld.	Ext	Nux Vomica	} aa 5 j.
"	"	Leptandra.....	
"	"	Glycyrrhiza	
"	"	Podophylum.....	

Dose.—Ten drops in water, after meals.

The abdomen should be covered with a stimulating plaster, or frequently rubbed with the hand in order to produce a gentle action in the part and excite the absorbents.

Now and then a mesenteric gland suppurates, opens at the navel, and frequently communicates with the intestines, and thus an artificial anus is produced. In the cases where there is an artificial anus, a large proportion recovers. Poultices should be applied over the opening, and when the inflammation is subdued strips of adhesive plaster should be applied so as to bring the edges of the wound together, but not until all the matter has been discharged from the gland.

DISEASES OF THE JOINTS.

Scrofulous diseases of the joints vary in their character according to the stage of the disease. It generally happens that after a child of strumous habit has walked a considerable distance, that it complains of pain in the joint, which is accompanied with stiffness and inability to move it. Under these circumstances the patient takes alarm, and I may say that this disease can never be too early attended to. It can generally be relieved, if it be attended to early, but if six weeks or two months elapse before treatment recovery is slow. A great deal, therefore, depends on early treatment.

Symptoms.—In these affections there is but little tenderness at first, and the swelling is very slight, the same local appearance as in health, and but trifling constitutional excitement ; but when the suppurative process is about taking place, a different set of local symptoms present themselves.

When the affection has existed for a length of time the suppurative process will at last set up, and the joint will assume the character common to inflammation of joints. When the suppurative process commences a great quantity of pus is secreted, if there be much constitutional irritation. Indeed, there may be at first a copious secretion, and slight constitutional derangement, for the suppurative process is not attended with the same constitutional effects as other parts of the body. We generally let abscesses open of themselves, as there is little constitutional irritation at first, and the opening cannot be delayed too long. The abscess generally opens in several places.

When strumous abscesses of joints break, which is a long time from the commencement of the disease, the ulceration is often a little distance from the joint, and there are, generally, sinuses extending from the point of ulceration to two or three inches up the joint ; and then in scrofulous enlargement of the knee, the abscess generally breaks above or below the patella.

Causes.—With respect to the nature of the disease, I believe that it is the result of exercise which has produced inflammation of the internal lining of the joints, and frequently of the synovial membrane; and that this inflammation goes on to absorption of the cartilage, and even of the bone.

Treatment.—The first indications of treatment are, rest of the limb affected, to reduce any inordinate heat of the part, and counter irritation.

If suppuration takes place, then wash with the myrica lotion and dress with the black salve, or the following may be tried with good effect :

℞—Myrica Wax ʒ ii.
Suet ʒ j.

Melt together to form an ointment.

The constitutional treatment should be that recommended for scrofulous patients generally. The syr. hypophosphites act well, also vegetable alteratives and tonics. Use discutient ointment over the enlargement, or :

℞—Iodide Potass. } aa.
Muriate Ammonia } ʒ ss.
Aqua } ʒ iii.

Rub well in and cover with oil silk.

Poultices of hops, or warm fomentations, will be beneficial. When the irritation is lessened by the means you have adopted, you must put a splint under the limb, extending from the hip to the heel, and then use friction, so that the joint may be restored to use. If no friction or passive motion be employed, there will be no chance of restoring the use of the limb. The last circumstance to be considered in this disease is, when does amputation become necessary? Formerly limbs were very frequently removed, but in the present day an affected limb may, with care and management, be often made more useful than an artificial one, hence amputation is seldom resorted to, even by the most ultra advocate of the knife.

COXALGIA.

DISEASE OF THE HIP JOINT.

Scrofulous diseases of the hip-joint are more liable to be mistaken than scrofulous disease of any other part of the body; much error prevails with regard to them.

Symptoms.—The first circumstance which indicates disease of the hip-joint is some degree of lameness and pain in the knee. The motions of the joint are impeded; extension is performed with difficulty; the child's knee is bent and the heel on the diseased side scarcely rests upon the ground; there is also great difficulty experienced in the flexion of the joint. When you endeavor to ascertain whether disease of the hip joint exists or not, you should first place the patient on his back and examine whether the sides of the pelvis are equal; the pelvis will be lower on the diseased side. Having placed the patient in the

recumbent posture, you will then bend the knee towards the abdomen, which, if there be disease of the hip-joint, will occasion considerable pain. In rotating the joint also, much pain will be excited in consequence of its stiffened state.

You will then turn the patient on his face, and observe whether the nates are lower on one side than on the other; there is generally a difference of an inch or more on the side affected.

These are the common symptoms of the disease. Abscesses are frequently formed in disease of the hip-joint, which take different directions: in general their course is down the thigh, between the trochanters and outer surface of the thigh, where they break. Sometimes they occur in the upper part of the thigh; sometimes they break into the rectum, and in other cases in the vagina.

Causes.—The cause of this disease is, in general, too much exertion for the strength of the patient, which produces inflammation of the synovial surface. On dissection of these cases, you find, in the first place, a quantity of adhesive matter is poured out about the joint; the ligaments are much thickened; the synovial surface is inflamed, and often slightly ulcerated; and lastly, the bone itself is sometimes absorbed; not only the head of the bone which enters the acetabulum, but the acetabulum itself.

Treatment.—With respect to the treatment of this disease, you will observe, during the inflammatory stages, the same plan which I have recommended to you in the treatment of scrofula.

In the first place, the recumbent posture, and as much rest as possible, should be strictly enjoined. If there is much pain, warm fomentations should be applied; discutient ointment should be employed in the first few days. If you do not find the inflammation yield in a few days, put on an irritating plaster and continue its use for some time.

The surface kept open with the irritating plaster should not be larger than say two inches square, as you might otherwise produce too much irritation and do more harm than good. It is better to regulate the degree of irritation in this way than to endeavor to produce violent effects. With respect to the treatment of abscesses in all diseases of joints, and especially in diseases of the hip-joint, postpone the opening of them as long as you can; unless the abscess is very large it is best not to open it at all.

The irritation will be very slight if you delay the opening, but if you make it early, the effect will be just the same as if you were to cut into the joint, it would excite much irritation in that important part. Give time for nature to perform her task, and to fill the joint itself with adhesive matter, as the abscess extends down the limb to a great distance from the joints.

When the disease is protracted it would be cruel and injurious to the child to keep it in a state of perfect rest; it, therefore, should be allowed to use a crutch.

Exercise will prevent the derangement of the general health and the depression of mind which may arise from long confinement. If the disease has continued for any length of time, it is not to be expected but that some lameness will remain.

VERTEBRAL DISEASES.

A disease similar to the disease in the joints occasionally occurs in the spine, sometimes beginning in the vertebral substance, sometimes in the bone itself. It is manifested in the following manner :

Symptoms.—The child complains of a fixed pain in the spine, the pain, however, is not confined to the spine, but extends down each side in the direction of the nerves arising from the spinal marrow. There is weakness and pain in the back ; pain in the sides ; more on one side than the other, and the nerves arising from the vertebral marrow are inflamed in consequence of the pressure on the membrane of the spinal marrow. After a little time there is a projection of the spine backward, one, two, or three spinous processes projecting more than the others. It usually happens that the lower extremities become affected, sensibility is diminished, and the muscles lose a portion of their voluntary power. The patient sits with his limbs drawn under him and his heels towards the nates, and there are, besides, spasmodic twitchings of the limb. There are particular symptoms in this disease which indicate the vertebræ affected. If the lumbar or dorsal vertebræ be affected, there will be difficulty in discharging the urine, and the fæces will at length pass off involuntarily. When the disease is in the neck, the head is the only part of the body, except the vital organs, which retains its powers ; volition is lost in all the parts of the body below the seat of the disease, and the patient is reduced to the most abject state of helplessness. This disease of the spine is very apt to produce abscesses, in the form of psoas and lumbar abscesses, which very often occasion a very considerable loss of substance.

Treatment.—The cure of this disease is effected by the upper portions of the vertebræ falling on the lower, and in this way giving rise to ankylosis.

To obtain this you should keep the spine of the child as much as possible at rest. With this view the child should be kept as steadily as can be in the recumbent posture, so that the vertebræ may be suffered to fall into contact, and by coalescing effect ankylosis. If you attempt to keep the spine straight, you will defeat the object of nature ; do not keep the patient in a directly straight line, but rather assist nature in producing the union of the vertebræ. In these cases great attention should be paid to the posture, rest, and general health of the child ; blisters, setons and issues are sometimes employed, but they do more harm than good.

With respect to the health, the child should have the best nourishment, taking care to avoid everything which may tend to produce feverish excitement ; likewise airings in a carriage, care being taken that the body should not be shaken. If the child cannot be kept at rest ; if the parents are unable, or refuse to observe these instructions, the next best treatment will be to apply a supporter to the spine, which is worn upon the spine and fixed around the pelvis and shoulders. The part of the spine affected is of no importance with respect to the cure—whether it be the neck, back, or loins, there will be no difference as to

treatment, except in the form of the mechanical means which may be employed. As to avoiding deformity in these cases, that is out of the question, for in all of them deformity is inevitable; whatever you do this cannot be prevented.

PSOAS AND LUMBAR ABSCESES.

By these terms are understood chronic collections of matter which form in the cellular substance of the loins behind the peritoneum, and descend in the course of the psoas muscle. If the disease forms on the side of the vertebræ instead of the forepart, it is termed a lumbar abscess instead of psoas.

The origin of psoas abscess is not in general attended with any symptoms of acute pain and inflammation, nor with any febrile disturbance of the constitution.

Symptoms.—Previous to the appearance of any other symptom, the patient long feels an unaccountable sense of weakness across the loins, accompanied by an obtuse, yet distressing pain; but this so far from leading to a suspicion of the nature of the disease is usually regarded as rheumatic.

The matter is formed slowly and imperceptibly, and occasions at first no manifest swelling or fluctuation. When the matter has collected, it spreads until it reaches the origin of the psoas muscle, which passes into ulceration and forms a bag, surrounded by a complete ring. The abscess proceeds as far as the tendons of the muscle by Poupart's ligament, and its further progress is restrained by the tendon; when it passes under Poupart's ligament, between the femoral vein and the symphysis pubis, it has generally attained considerable magnitude. While the abscess is attended with no external tumor, the diagnosis is always difficult. Upon the first appearance of the tumor beneath Poupart's ligament, it possesses so many of the characteristics of hernia as to be with difficulty known from femoral hernia, but the marks which distinguish it are the pains in the loins and the great constitutional derangement which the patient suffers in the progress of the complaint. The outward swelling occurring may take place in various situations and assume different appearances. The swelling, when in the groin, insinuates itself beneath the femoral fascia. In other instances it descends as far as the knee, where it forms a prominent swelling. Sometimes it makes its way downward into the pelvis and occasions a swelling in the neighborhood of the anus. Sometimes it tends towards the loins and sacrum, giving rise to a swelling exactly in the place where abscesses often make their appearance in the disease of the hip joint. In a few instances the matter causes a swelling in the vicinity of the vertebræ, and less frequently still it makes its way through the abdominal muscles and produces a tumor at some part of the abdomen.

Causes.—The causes of a psoas abscess are frequently involved in great obscurity. It is supposed, sometimes, to arise from injury done the back and loins from a severe twist, blows, etc.; at other times, to proceed from sudden exposure from cold after severe exercise, particularly in scrofulous habits.

Treatment.—With respect to treatment, you must allow the abscess to take its course; very little can be done in this disease, until it has acquired consider-

able magnitude. Little can be done to prevent its progress when it is once formed, and I do not know that any advantage is to be derived from counter-irritation. The treatment I should recommend is to let the abscess proceed until you observe a redness or blush of the skin, and then make a valvular opening into the part, so as to discharge the matter, and close the wound immediately. The danger does not arise from the quantity of matter accumulated, but from the irritation produced by the attempt of nature to close the abscess and fill the cavity by the process of adhesion. Four days after the abscess is opened violent symptoms of constitutional irritation are apt to come on, such as great depression of strength, loss of appetite, and the patient is soon reduced to the lowest extremity.

It is extremely desirable to prevent the recurrence of these symptoms. You are to make the opening obliquely, apply a bandage around the abdomen, and endeavor to bring the sides of the abscess as close together as possible, in order to promote the process of adhesion. If ulceration should take place, the matter will be in this way discharged, and all you can do is to support the efforts of nature. In addition to the operation you adopt for this disease, I advise you to use all the means which I recommended in scrofula for improving the general health of the patient. A considerable degree of rest should be enjoined. You may also inject the abscess with a solution of myrica, it promotes the adhesive process in the interior of the abscess, glues its sides together and lessens the purulent secretion.

RACHITIS.

This is a peculiar disease, produced by debility of the vascular system, and is commonly called rickets.

Symptoms.—Rachitis first manifests itself in disease of the mesenteric glands; the abdomen is increased in size, the head is considerably enlarged and out of proportion to the rest of the body, so that the disease is often mistaken for hydrocephalus. The chin is expanded, the sides of the jaws are brought together, and the whole of the features are altered, so that in general, by looking at the face of a patient, you infer from it the nature of the disease. In rachitis an alteration takes place in the form of the spine, which has a double curvature, above and below, like the italic letter *S*, and the other parts of the body are consequently affected by the distortion. Under these circumstances, nature endeavors still to preserve the perpendicular line of the body, by producing a second curve as soon as one begins, and the equilibrium is maintained, though there is a considerable variation in the form of the spine. The scapula is also considerably projected; but pressure on the shoulder, with a view of remedying this defect, is a most absurd and unscientific practice, it may give pain but can do no possible good. The spine, in these cases, has given way in two directions, and the ribs on one side are more curved than on the other. This incurvation of the ribs occasions the alteration in the form of the scapula. The anterior part of the chest is extremely projected; the sternum is sometimes sunk be-

tween the cartilages of the ribs, and sometimes advances so as to form what is called a chicken breast. In addition to the parts already mentioned as influenced by rachitis, the bones of the extremities all undergo a curvature. When this disease has continued for any length of time, absorption of some of the bones take place, and nothing but the cartilage remains.

Causes.—The cause of all these changes is a great deficiency in the powers of the circulation, in consequence of which the bones lose their phosphate of lime, and become spongy at the extremities, and the joints, therefore, are exceedingly enlarged. The ossific matter binds down the cartilage, so as to prevent their expansion, hence arises a diminution of the ossific deposit, which leads to the alteration in the form of the bones.

Treatment.—With respect to the treatment of these cases, you will observe the same general principles which I laid down for scrofula, and you will also resort to mechanical means. If the head is affected, you must direct your mechanical means for its benefit. For the enlargement of the head it will be right to use some sort of pressure; a cap or roller around the head may be worn for the purpose of preventing the growth of the head, by the pressure of the arteries of the brain. The next point of your treatment is to prevent the curvature of the spine. For this purpose it has been the practice to keep the children in the recumbent posture for a great length of time. This is a plan which I by no means advise; exercise should be freely allowed, taking care only that it be not protracted so as to occasion fatigue. At the same time exercise is taken you must preserve the spine in a straight position by giving artificial support. This may be effected by the apparatus now in use for spinal weakness. Kolbe, of Philadelphia, makes the best. It fits to the back of the patient and passes around the pelvis without pressing on the sides; the pressure is on the crista of the ileum, and not on the sides. In the use of mechanical means the great object should be not to force the child into a constrained position, but merely to prevent inclination on one side or the other.

CARCINOMA.

This is a morbid condition of the blood in which the corpuscles are changed, elongated, rounded or pointed in their appearance, and where we have a local infiltration of fibrous or cell growth. The corpuscles change, the cell growth increases just in proportion as the vitality decreases. The absorbents are more or less deranged from the beginning, and the lymphatics become involved, first in the vicinity of the local manifestation, and gradually increase until the whole system becomes involved. Just as long as the peculiar germ or cell remains in the blood the cancerous growth is supplied with nutrition. The blood is gradually impoverished and the patient may die of sheer exhaustion long before the destruction of any vital part produces death. We shall consider cancer under three heads, subdividing them merely to express the different forms under which they appear.

First, we have the medullary, or brain cancer. This we may rightly term the

acute form of cancer. It is characterized by an excess of cell growth where we have an exuberant crop of granulations, brain-like, rounded on the surface, sometimes resembling the pomegranate seed, and often containing a grayish matter, very much like the brain, and from which, and its granular appearance, it derives its name. This form of cancer runs its course rapidly, does not eat or destroy the parts, but rather sprouts up rapidly and exhausts by the great drain upon the system, and the rapid devitalization of the blood. Even the very aliment taken into the stomach seems to be appropriated to supply the growth of medullary cancer. The blood becomes impoverished and the patient fails from lack of nutrition. While this terrible growth accumulates, at certain stages the growth is so rapid that the most destructive caustic will not destroy it as fast as it is produced; the knife but gives redoubled impetus to it, and its ravages are fearful to contemplate. This form of cancer is found on the mamma, the uterus of females; the head, and sometimes on the lips, eyes and nostrils, and the penis and scrotum of the male. These are the most common locations of this variety, but it may appear on any part of the person.

The scirrhus hard, or, as it is sometimes called, the stone cancer, may be rightfully termed the chronic variety of cancer. It makes its appearance in the form of a hard, rounded or flattened tumor, and grows just in proportion to the nutrition supplied. It is characterized by the predominance of fibrous tissues, and is almost wanting in the cancer cells so prominent in the medullary form. Scirrhus is most frequently met with in the mamma of the female, and may also attack the male in the same region. The liver, stomach, intestines and heart are also frequently attacked by this variety. It is often free from pain; in fact, I have met with cases where pain was altogether lacking. The progress of the case is slow, and it may be retarded for years, where the patient is of good constitution and subject to no depressing influences.

Epithelial cancer, or cancrroid, as it is sometimes termed, contains an excess of epithelial cells, usually met with where mucous membrane ends and skin begins. All other forms of cancer are but varieties, or stages of these three.

We have the melanoid, or black cancer, characterized by excess of cells and black pigment; this belongs to the medullary variety.

Hematoid, or fungus hematodes, belong to the same variety, and is characterized by excess of cell growth with blood intermixed in small cysts or vessels.

The osteoid, or bone cancer, occurs in bone, or where we have an excess of bone material in the system. This belongs to the scirrhus or chronic variety. The lardaceous, or fatty form, is where we have, infiltrated among the fibrous tissues of the scirrhus cancer, an abundance of fat.

The colloid, or gelatinous form, where there is an excess of the gelatinous material.

Keloid cancer is met with in the form of leathery patches, and is very difficult to manage; is found on the hand more frequently than any other part of the person.

Causes.—Cancer may be hereditary, transmitted from parent to offspring, or acquired by anything that depreciates the nervous system—anything that diminishes vitality, creates anxiety. The advance of civilization brings with it

many evils as well as much that is good, and the rapid increase of cancer but proves this one of the evils this state of society produces. Venereal excesses, mercurial poisoning, arsenic, and all other poison which may be cumulative, and lower the power to resist disease—any cause that will produce scrofula will help to develop cancer; incompatibility in parents gives to offspring deficient vitality, and this favors the increase of cancer in the human race. Nervous depression, where the nervous system is kept at a tension, and the struggle for existence requires mental worry disproportionate to cheerful surroundings, and bodily exercise, help to produce cancer. No age, sex or condition are exempt from it.

Cancer cells or germs may lay dormant for years while the mind is at ease and the general health fair, and may start up and run its course rapidly under a sudden change to a depressing influence. The pathological conditions of cancer are such as to separate it from every other morbid growth.

Diagnosis.—It is of great importance to be able to diagnose a case of cancer correctly. Hundreds of cases die from the effects of cancer while being maltreated for other disease. Simple induration of a gland is sometimes mistaken for cancer. In cancer there is always a separate tumor or infiltration which is disposed to alter or change the texture and appearance of the original organs or parts in which it is situated, with a tendency to involve the surrounding part; to extend to the nearest lymphatics and ultimately usurp the whole part.

Cancer having appeared in the mamma tends towards the lymphatics in the axillæ, and soon involves all the tissues, and this is true of all other varieties and locations; therefore when you find a case that you suspect, always look beyond to determine if the lymphatic nearest by is involved. While pain is a characteristic symptom, lancinating, excruciating, with a feeling as if a knife or needle had been driven into the part, yet it may be absent altogether or not to any great extent.

Cancer is to all intents and purposes a foreign body, having no affinity or counterpart in healthy tissues. The mere existence of the smallest local infiltration or manifestation is evidence of a diseased condition, and no difference, how apparently healthy one who is the victim of cancer may appear, the same necessity exists for a thorough constitutional treatment designed to overcome the cancerous diathesis.

All cases of cancer of much extent or long standing are characterized by a peculiar dirty yellow tinge of the skin and pearly conjunctiva, contracted features, emaciations, loss of strength and energy, irritable condition of nervous system.

The local growth gradually increases and runs on to inflammation, suppuration and destruction of the parts, partly from pressure, but mainly from a process of disintegration and decay. This is due to the fact that the cancer cell possesses the elements of death within itself, and the whole history of a case of cancer is one of retrogression, with death the inevitable termination, unless arrested before too far advanced.

Prognosis.—Favorable when properly treated, and if seen before the lymphat-

ics are involved. If they are implicated the tendency of the case is towards death, and all treatment fails.

Treatment.—The treatment of cancer by the knife or caustic is useless. The only treatment that offers the least hope of a cure is that which will act as a nerve and brain tonic and purify the blood. Without a healthy, active condition of the nervous system, we cannot elaborate good blood; without an active, healthy condition of the absorbents, we cannot overcome the cancerous diathesis. We need new blood and to do away with the old blood which is full of cancerous cells. Now, as a preliminary to any local treatment, you must put your patient on a thorough constitutional course for some weeks, and in extreme cases months, before any effort is made to remove local growths. In this way you get up a reaction, establish a healthy action of the absorbents, eradicate the germ of the disease from the blood, cut off the nutrition from the local growth, and thus prepare the way for the successful removal of the infiltration. The local application should be such as will produce little or no irritation; never permit the knife or the application of caustic to the parts. We must base our treatment upon a more scientific principle, one in harmony with nature. The grand indication of treatment is to build up the vital principle. This we shall do by tonics, nourishing food, pure air, warm clothing and stimulating the secretions; get the mind from the disease as much as possible; keep down pain; insist on vigorous mental occupation, and when we have offensive discharges we must neutralize them with proper disinfectants. You will need to bring to your aid good common sense in the management of cancer. If you do this and follow the line of treatment I have laid down for you, you will find your success all for which you could wish. Remember that in cancer there is no specific, and that your treatment must be varied and adapted to the case before you. We must stimulate the secretions, and to this end we should get the liver in a good working condition, and this is best accomplished by giving with the alterative something to act speedily upon that organ.

R —Fld. Ext. Podophyllum.....	5 j.
“ “ Leptandra	5 ij.
“ “ Hydrastis Can	5 iij.
“ “ Nux Vomica.....	5 ss.

Dose.—Twenty to thirty drops at bed time.

This will gently stimulate the liver and stomach. Then once in three days give your patient a nitro-muriatic acid bath prepared as follows :

R —Nitro-Muriatic Acid.....	1b. ij.
Aqua	Cong. x.

This is both alterative and tonic, and under its use the sallow, dirty hue of the skin will disappear, and we have rapid improvement generally. Flannel next the skin, moderate exercise in the open air; diet, the most nutritious the patient can afford, and should consist mainly of animal food, game, milk, cream, raw eggs, fresh fish, oysters, etc. We may alternate the nitro-muriatic acid bath with an alcoholic vapor bath to which sulphur has been added, and occasionally a warm salt water bath. After having attended to the hygienic, dietetic, and mental and moral surroundings of your patient, removing, as far as

possible, all depressing influences, then begin with the active constitutional treatment:

R—Fld. Ext. Iris Versicol	.....	℥ j.
“ “ Phytolacca Decan	.....	} aa.
“ “ Alnus Rub	.....
“ “ Dulcamara	.....
“ “ Helli-anthemum	.....
“ “ Sanguinaria	.....
“ “ Taraxacum	.....	℥ ss.
Alcohol	.....	℥ ii.
Syrup Simplex	.....	℥ x.

Dose.—One teaspoonful before each meal, gradually increasing the dose to a tablespoonful; always give on an empty stomach, and in, at least, half a wine-glass of water.

This preparation has a powerful stimulating effect upon the glandular system, and under its use the progress of the disease will be arrested and the nutrition cut off from the diseased mass, and improvement is rapid, as this treatment, long continued, will reduce the quantity and change the quality of the blood.

We may find it a good plan to occasionally suspend it for a week and substitute the syr. hypophosphites comp. Having thus prepared the system, our next step is to determine as to local treatment. If the cancer is not yet suppurated, that is, if the skin is not broken and the cancer discharging, brush the tumor with:

R—Podophyllin	.....	grs. xxx.
Alcohol	.....	℥ j.

Take care not to let it touch any but the region of the tumor.

Apply this twice a day for a week, then poultice with elm, or anything most convenient, until the dead part drops out. Should the whole mass not be destroyed at first, continue the application of the solution until it is ready to slough again. This treatment is intended for cancers not broken, but yet so far advanced as to make absorption impossible. When the tumor is small, we may, by persevering with the constitutional treatment, and the application of the following plaster, produce absorption of the tumor without breaking the skin.

R—Iodide Potass	.....	aa.
Muriate Ammonia	.....	℥ j.
Stramonium Ointment	.....	℥ ii.

Pulverize the iodide potass. and the ammonia, and thoroughly incorporate them with the stramonium ointment. Spread on leather and keep constantly applied to the tumor, renewing twice a day.

If, however, the cancer is sloughing, and a putrid malignant ulcer exists, we would advise the following course of treatment:

R—Fld. Ext. Baptisia	.....	℥ j.
Aqua	.....	℥ viii.

Keep constantly applied with lint, until the offensive discharge is corrected, then use:

R—Fld. Ext. Myrica Cerif	.....	aa.
“ “ Nymphaea Odor.	.....	} ℥ j.
“ “ Papaver	.....
Aqua	.....	℥ j.

Mix, and apply to the cancer two or three times a day. Dress with some healing salve, and you will be astonished at the favorable change of the case. If you should determine that a more active local application is needed you will find :

R—Trifolium, blossoms.
Phytolacca Decan.
Rumex Crisp, leaves.
Sorrel, herb.

Of each a sufficient quantity, fresh plant, root, etc.; cut fine place in a press, first having moistened the whole, press out the juice, evaporate in the sun until the consistence of molasses, and apply, renewing once in twenty-four hours. In from three to seven days the whole mass will drop out, then heal with black salve. A good caustic plaster is :

R—Chloride Zinc..... } aa.
Pul Sanguinaria } 3 j.

Make into a paste with water and apply for twenty-four hours, then change and apply a second one for same length of time ; poultice until the cancer drops out, and dress with black salve till healed. After the cancer is out and healed we must not relax our efforts, but keep steady on with the blood treatment until the last vestige of the disease is eradicated.

Even in advanced cases this treatment will make an entire change in the progress of the case. I have kept patients alive and comfortable for years, even in hopeless cases.

One great trouble, or drawback, in treating is, that they are usually neglected, left alone, or improperly treated, until they are hopeless, before any rational treatment is adopted.

We have so many pretended cancer doctors, so many infallible remedies, etc., that no one can wonder that between these charlatans the disease, arsenic, and the knife, cancer assumes a formidable shape, indeed ; but I venture to say, under a rational treatment, taken in time and properly managed, we should have no more fatality attending this disease than many others now considered of much less importance.

GLANDERS.

This disease is well known in the horse, and sometimes even those who ride or drive a horse with the disease may contract it from the matter coming in contact with some scratch or abrasion of the skin.

Symptoms.—Extreme lassitude, debility, pain in the head, back, calves of the legs, dry brown tongue, arrest of all the secretions. We sometimes have high degree of inflammation, and ulceration of the mucous membrane of the nose, and the whole glandular system becomes involved.

Treatment.—Apply the following to the wound immediately, or as soon as you have reason to suspect contagion :

R—Carbolic Acid..... grs. x
Glycerine..... 3 ss.

And give internally, sulphite of soda ten grains, in a wine glass of water, and repeat every three hours. Apply a strong solution of the same over the affected limb—say two ounces to a pint of water. Keep up an action on the skin with the comp. tinct. serpentaria, but depend on the sulphite of soda. It is the best and only reliable remedy known to the profession.

If we have much fever, an emetic, followed by a vapor bath and an active cathartic to remove any morbid accumulation in the alimentary canal. If the nostrils are affected before you see the patient, inject them with :

R—Carbolic Acid.....	3 ss.
Glycerine	3 iv.

And use the same to any ulcer or abscess that may have formed.

BRONCHOCELE.

This is an enlargement of the thyroid gland; it is a true hypertrophy, and may be divided into three forms, according to the tissue involved—vascular, glandular, and a calcarious—a chalky transformation.

Vascular goitre consists merely of congested engorgement from suppressed menstruation, amenorrhœa, etc. This gland is profusely supplied with blood vessels, and is liable to take on congestion from very slight causes. Vascular goitre sometimes terminates in the rupture of a blood vessel of the gland, and the effused blood being absorbed, the tumor disappears, or in other cases, not being taken up by the absorbents, it forms the basis for a calcarious deposit.

Glandular goitre consists of an abnormal development of the glandular capsules distended by a gelatinous fluid. This gland is soft and yielding to the finger. The chalky transformation or calcarious deposit is of a more hard and unyielding nature.

Symptoms.—We meet with cases where the whole gland is enlarged, others where the centre or side only is involved. Many cases suffer no inconvenience, save the deformity. In others we have severe constitutional symptoms, general debility, diminished red corpuscles in the blood, palpitation, mental depression, dyspepsia, difficult respiration, difficulty of swallowing from presence of the tumor, with irregularity of the uterine functions, scanty menstruation, profuse leucorrhœa.

Causes.—The deformity or disease is common in some localities, and has been attributed to some peculiar calcarious or chalky principles in the water—magnesia or lime-stone for instance. I have found it in many cases where the usual local causes were wanting. In these cases I have readily traced it to deficient circulation and local irritation.

Treatment.—Change of residence will be advisable if the case can be traced to local cause. The disease is easily controlled if taken in time, and proper means used. Tinct. iodine is the first local application of the regulars, but we have found the following act promptly, and under its use a permanent cure effected in a remarkably short time:

Give the syr. iris versicolor comp. before each meal. Locally :

R—Fld. Ext. Phytolacca	℥ ii
Bromide Potass.....	aa.
Iodide Potass.....	℥ ss.
Aqua.....	℥ iv.

Dissolve the iodide and bromide potass. in the water, add the phytolacca, and apply night and morning, covering with oil silk or flannel. Keep all the secretions in active condition.

SCURVY.

Chiefly confined to inhabitants of northern latitudes ; seldom appears in the South or tropics—this exemption due to great abundance of fruit and vegetables. It is most common in the navy and army, or among sailors, when confined to salt pork, bad bread, without vegetables or fruit. Want of cleanliness is another cause of this trouble. The existence of scurvy has been attributed to the want of potash in the food. Most of vegetables contain a certain per cent. of potash ; also, fresh meats, etc. Scorbutic patients soon recover under the use of potash.

Symptoms.—These are first noticed in the changed appearance of the countenance, the face is pale and bloated, and the white complexion assumes a dingy hue, the gums swell and bleed when but slightly touched ; bad breath, general debility, lassitude and pain in the limbs highly resembling rheumatism ; the joints feel stiff and weak, and any exertion seems a task ; difficulty of breathing ; dry, harsh skin.

The condition of the blood in scurvy is entirely changed ; there is over one hundred and fifty parts more of water in scurvy than in health. There soon appears black, brown or blue spots all over the skin, and the extremities become smaller. Hemorrhage from bowels, throat, etc. may take place, and is often extremely troublesome. The symptoms are so well marked that there is no mistaking the disease, and the remedies are sure and simple.

Treatment.—In scurvy the main object is to change the diathesis, and to this end plenty of fresh meats, vegetables, fruits as a diet, and the following internally :

R—Tinet. Cinchona Comp	℥ viii.
Phosphoric Acid Dil.....	℥ ij.
Syrup Simplex	℥ vi.

Dose.—One teaspoonful before each meal, having a care for diet, giving only fresh meats, vegetables and fruits. Lemons or lemon juice is excellent. The iodide of potass., with syr. stillingia comp. internally.

POISON OF SUBJECTS.

Whenever life ceases a change takes place in the bodies of all animals, the tendency of which is to reduce them to the simple materials—original constituents; water, carbonic acid, ammonia and earths.

During the process of this change a number of complex substances are liable to be formed, which have a most deleterious effect if introduced into the blood of living animals.

They are known as septic poisons, and they produce in the living body the same state of decomposition as they are undergoing themselves. They usually consist of gaseous emanations, faint, sickly, nauseous; putrid, deleterious gases, which are absorbed in the blood; the skin and bronchial mucous membrane are the points of ingress; they are eliminated by the skin and mucous membrane, without any alteration of their sensible qualities. Their elimination by the gastro-intestinal mucous membrane is the chief cause of the diarrhoea so common among medical students.

DISSECTION WOUNDS.

The most important consequences of wounds inoculated with the septic poisons from a subject, are inflammation of the lymphatics, and diffuse inflammation of the cellular tissue.

This description of wounds gives rise to a great variety and complication of symptoms. In some cases, the poison having access through a wound into the blood, we have symptoms of constitutional contamination, as manifested by the rigors, headache, vomiting, pulse frequent and sharp, tongue coated, great restlessness and despondency. In other cases we may have a pustule on or near the wound, the pustule may be unattended with pain, but there is usually a most excruciating pain in the shoulder of the affected side, with fullness of the axillæ and the neck, a doughy swelling on the side of the trunk, often extending from the axilla to the ilium; this soon assumes an erysipelatous redness. The symptoms become aggravated; breathing difficult; pulse quicker and quicker; the tongue brown, dry, tremulous; mental distress, appalling, soon delirium; countenance haggard; the skin yellow, and the patient gradually expires.

In another class of cases we have this order of things reversed; the patient dying of the precursory fever before sufficient time has elapsed for the appearance of the local disease. In another class of cases we have diffuse cellular abscess in the remote parts; in another class of cases we may have the lymphatic vessels affected with all the other symptoms of the peculiar depressing effects of the absorption of a poison.

These different phases, the result of dissecting wounds, are unquestionably due to the absorption of poison, it acting in different degrees of intensity, according to the vital powers of the patient. As a general thing, the disease arises from fresh subjects; the most dangerous poison is destroyed by putrefaction.

The most deadly virus is that contained in the bodies of women who have died from puerperal fever.

Treatment.—The indications clearly are, to support the nervous system in its state of depression, to eliminate the poison from the blood, to relieve pain, tension, and promote the discharge of pus or sloughs. As soon as the patient is noticed indisposed after a wound from dissection, it is highly advisable to begin treatment. An emetic of the comp. powder of lobelia, with composition tea until we have free emesis.

Then give the patient an alcoholic vapor bath, continuing free diaphoresis for some time. After these give an active dose of podophyllin and fluid extract of senna; active purgation. This course of treatment should be followed by large doses of sulphite of soda, alternated with the permanganate of potassa and syr. of stillingia comp. with iodide of potassa.

Sponge the entire surface every three hours; keep the kidneys, bowels, all the great emunctories open, and neutralize the septic poison by appropriate remedies. Thorough hygiene should be the rule—good blood—elaborating diet should be given, and as soon as the patient can be removed, fresh country air, and convalescence established on tonics, etc., etc. The most rigid attention to the case is necessary.

The wound should at once be cauterized with caustic potassa, followed with poultices of slippery elm and lobelia; if the poison is taken in by a scratch or cut, inflammation of the veins is apt to follow; they become red, cordy, extremely painful.

It may be arrested at the elbow or proceed up the arm to the axillæ, and doughy swellings form on the side, suppuration is rapid, absorption of pus, and death.

The veins in those cases should be emptied by applying a few leeches over them; then the skin over the veins should be painted freely with creosote, and the whole arm enveloped in an alkaline poultice composed of slippery elm, bi-carbonate of soda and hops.

Large doses of fluid extract papaver should be frequently administered, so as to blunt the impressibility of the nervous system to the local irritation. You should advise nurses, and washerwomen should exercise the greatest care, especially with reference to the lochia or cleansing of ladies in child-bed—they should be careful of abrasions or fissures about the hands or finger nails.

BITES OF RABID ANIMALS.

The preliminary treatment of bites from various reptiles and rabid animals, is much the same.

Apply a ligature above and below the wounded part at once. Apply so tight that it will prevent absorption. Cut out the wounded part, or apply a cupping glass at once. Wash the wound with tepid water, then apply caustic potash, taking care to touch every part with which the teeth came in contact; then

wash the wound with vinegar, after which dry the wound and sprinkle with sulphate of morphia, then poultice with :

R—Saturated Solution Sulphite of Soda..... ʒ v.
Pulverized Elm (enough to make a poultice)

Apply and change every three hours.

The poison of rabid animals and venomous reptiles seems to have a special affinity for the nervous system, consequently we have a long line of nervous derangements, pain in the wounded part, radiating in the course of the nerves, swelling, redness, or livid appearance of the features, rapidity of the pulse, hiccough, vomiting, shortness and difficulty of breathing, profuse sweat, convulsions, etc. These symptoms are best controlled by stimulants that control sensation, a large dose of brandy, capsicum, scutellaria.

In fact, thorough intoxication, if no other remedies are at hand.

Our best remedies are ten grains of capsicum every hour, with a tea of skull-cap. The most common poisonous reptile, in our country, is the snake; and I have cured many cases of snake bite with lobelia, locally and internally. Administer freely.

ACUTE RHEUMATISM.

Inflammation in the fibrous structures about the joints, wandering, and attended with severe pain, more or less swelling, and fever.

Symptoms.—Symptoms of acute rheumatism first manifest themselves in the form of slight chills, lassitude, and general uneasiness, which are quickly succeeded by pain, swelling, redness, and augmented heat.

The pain varies in character, being sometimes aching or gnawing, at others, lancinating, darting, dull, throbbing or numb; pungent and pricking and aggravated by movement, by exposure to cold air, by pressure to the touch. At first rheumatism seizes upon the fibrous textures; but as the inflammatory action becomes developed, other tissues become involved. The larger joints are more subject to rheumatic inflammation than any other part. The other symptoms are, bitter taste in the mouth, coated tongue, rapid and full pulse, hot skin, scanty urine, high colored and sedimentous; intense pain in moving the affected part; anxious, distressed expression of countenance, and occasional perspiration.

Rheumatism consists of a specific inflammation of a constitutional character, varying in its manifestations according to the part in which it happens to locate. It is extremely liable to shift from joint to joint, and fix upon some internal organ, as the brain, or its membranes, the pulmonary structures, the heart and its appendages. There is, usually, little danger when it is confined to the joints. It is termed muscular rheumatism, when seated in the muscular structure, articular, when in the joints, neuralgic, when seated in the nerves, or their investing membranes.

Causes.—The exciting causes in rheumatism are bad diet, hard work, exposure to cold and wet, and its subjects generally are the poor laboring population.

Rheumatic inflammation seated in the fibrous textures of the body; essentially distinct from common inflammation; shifts its place like gout; metastasis to important internal organs, always very dangerous; rarely terminates in suppuration; never terminates in resolution, without the concomitance of general but not profuse perspiration, and the disposition of a laterious sediment by the urine. Neither of these occurrences to be regarded as critical, when they appear separately; a very copious sweat is no uncommon occurrence in this disease; but it is never attended by any marked abatement of the rheumatic symptoms, unless the urine at the same time deposits a red sediment. Rheumatism is seldom fatal, except by metastasis to important internal parts.

Acute rheumatism occurring in persons exposed to the influence of marsh miasma assumes a modified character. There are in such cases, conjoined with the rheumatic affection, prominent symptoms of the biliary organs—such as an icteric hue of the tunica albuginea; a brown and bitter tongue; great headache, bilious vomiting, etc. After each act of vomiting the pains remit. This variety of disease has been called *bilious rheumatism*.

Treatment.—The general indications are to regulate the diet, the nutritive functions, so as to ensure a due balance between the amount of matter entering the blood as the result of digestion, primary or secondary, and the amount of matter discharged from the economy by the excretory organs, and to conduct an acute attack to a favorable termination, carefully watching the internal viscera, and being prepared to act with vigor where active treatment is indicated. The active treatment of rheumatism resolves itself into curative and preventive; the one must be carried out by remedies that act on the blood and excretory organs; the other by diet, exercise and hygiene.

Although the general pathology of rheumatism clearly points to the presence of lactic acid in the blood, generated during imperfect digestion, we are still unable to explain the whole train of symptoms, and our treatment of acute rheumatism must be based upon general principles.

Called to a case of acute rheumatism, we would give first, an emetic of comp. powder of lobelia, followed with a cathartic of podophyllin and leptandrin, as:

R —Podophyllin	grs. ij.
Leptandrin	grs. iv.
Bitartrate Potass	5j.

Mix.—Divide into four powders, and give one once in five hours, till there is free action on liver and bowels. Give alcoholic vapor bath and diaphoretics and diuretics combined:

R —Fld. Ext. <i>Serpentaria</i>	} aa.
“ “ <i>Xanthoxylum</i>	
“ “ <i>Eupatorium Purp.</i>	
“ “ <i>Eupatorium Per</i>	
Syrup Simplex	3 ii.

Dose.—One teaspoonful once in three hours until we have free diuresis. The above produces gentle perspiration and free action of kidneys, and a course of this kind will generally abort the disease.

If, however, prompt relief is not obtained, add to each dose of the above two grains iodide potass, and continue until pain is relieved. Then build up your patient on tonics and nerve stimulants.

Local Treatment.—We have never found much good result from local applications. True, they may, and often do, give temporary relief, but on the other hand they often throw the disease to some internal part, and thus do more harm than good. An occasional alkaline bath will be found beneficial; in fact, in the absence of a vapor bath, is essential to success. In all cases of acute rheumatism we have an excess of acid, therefore we should prohibit the use of acid as a drink or diet, and adopt, instead, such articles as will neutralize acidity.

CHRONIC RHEUMATISM.

Symptoms.—Little or no swelling or redness of the parts affected; no fever; *pain* sometimes confined to one or two joints—sometimes felt only on motion. In some instances the rheumatic form is persistive; in others, after having continued for a time, it goes off leaving the parts somewhat stiff and debilitated. The skin is generally dry and harsh. A thickened and knotty state of the tendons; wasting of the muscles about the affected joints; rigidity and thickening of the ligaments, and consequent stiffness of the joints, are consequences of severe and protracted rheumatism.

Causes.—Frequently the result of the acute form of the disease, continued exposure to a cold and damp atmosphere; improper exposure while under the influence of mercury; atmospheric vicissitudes.

Diagnosis.—The diagnosis of chronic rheumatism is usually easy, the malnutrition, the acid diathesis; wandering pains attacking the fibrous structures; metastasis, when the standard of vitality is raised.

Chronic rheumatism in the muscles of the loins (*lumbago*), distinguished from nephritis by the aggravation of pain on bending the body forwards, as well as by the absence of nausea and vomiting, retraction of the testicle, and urgent desire to pass urine, which characterize the latter complaint.

Mercurial or syphilitic rheumatism, distinguished from rheumatism produced by other causes by the periosteum of the *tibæ*, *ulnæ* or *os frontis* becoming thickened and tender to pressure, together with the history of the case. A correct diagnosis is important, so as to carry out a judicious treatment.

Treatment.—We should endeavor to build up the general health, advise flannel next the skin; a warm, alkaline bath, two or three times a week; avoid exposure to sudden changes or vicissitudes of weather; a careful attention to diet; avoid all acid or saccharine matter; beef is not advisable as a diet in chronic rheumatism. Enjoin rest, and have the patient's surroundings as comfortable as possible. Then put him on:

R—Syr. *Stillingia Comp.*..... O j.
Iodide Potass..... ʒ vi.

Dose.—One teaspoonful three times a day. Allow an interval of one hour, and give:

R.—Fld. Ext. *Cimicifuga* ʒ j.
“ “ *Zanthoxylum*..... } aa.
“ “ *Phytolacca*.. } ʒ ss.

Dose.—Twenty to thirty drops three times a day. We may alternate between syr. stillingia comp. with iodide potass. and the syr. iris versicolor. The dulcamara, in recent cases when we have cause to suspect suppressed perspiration the cause, as in the acute variety.

I do not advise local applications, but as most patients who have not already been victimized by liniments, oils, etc., are anxious for some local treatment, we would direct a stimulating liniment:

R—Aqua Ammonia.....	℥ ii.
Tr. Capsicum.....	} aa.
“ Arnica.....	
Oil Terebinth.....	
Fld. Ext. Phytolacca.....	℥ j.

Mix.—Shake well, and rub well in over the affected part two or three times a day.

A bath of soda and water, warm as it can be borne, will, in most cases, give more prompt relief than liniment. The bowels should be kept regulated, and, as near as practicable, all the secretions brought up to a healthy standard.

GOUT.

Gout is divided into the acute and chronic varieties.

ACUTE GOUT.

Symptoms.—Violent inflammation of the ball of the great toe of one foot, attended with excruciating pain, redness of the skin, distention of the neighboring veins, and at the end of about forty-eight hours, œdema. The attack generally occurs between twelve and three o'clock at night. There are slight remissions in the morning and violent exacerbations at night. The paroxysm seldom terminates before the sixth, or continues beyond the tenth day. The œdema continues some days after the inflammation has subsided. After the disease has disappeared in one foot, it sometimes makes an immediate attack on the other. The disease is generally preceded by a train of premonitory symptoms, most commonly indicative of gastric disorder. Though in its first attacks confined exclusively to the feet, gout seizes upon many other parts, during the same paroxysm, after the system has become enfeebled by frequent recurrences of the disease. Pulse in severe attacks, full, hard and strong; in slight cases the constitutional symptoms are not prominent; the digestive functions always considerably disturbed; bowels torpid, urine scanty and of a deep red color, depositing a pink or lateritious sediment. The inflamed parts are exquisitely sensitive to the slightest touch. Frequently structural derangement of the liver; permanent debility of the stomach. Thickening and shortening of the ligaments are the most common local consequences of gouty inflammation. Gouty concretions not very frequent.

Causes.—The predisposition to gout *sometimes* hereditary, though not so frequently as is generally supposed. It is most commonly acquired by the operation of the following, and perhaps other causes, *viz*: The depressing passions,

severe and protracted study; the habitual use of high-seasoned animal food and vinous liquors, with an *indolent or inactive course of life*. Gout rarely occurs before the twentieth year of age—most apt to commence its attacks between the thirtieth and fortieth years.

Exciting causes.—Excessive intemperance; redundancy of bile; an accumulation of acid in the stomach, cold and humidity; external injuries; fatigue and mental anxiety; violent passions.

Proximate cause.—Consists in an excess of uric acid, and the primary digestion is impaired; acid is generated; an excess of soda is occasionally met with, when we have a combination of acid and soda, and then follows a deposit about the joints. There can be no question but the real cause of gout is in a derangement of the functions of digestion, this in time produces an irritation in the alimentary canal; acid is generated and thrown out, enters the circulation, and to this we can trace the whole train of symptoms of gout.

Treatment. To obviate the recurrence of the disease we must remove, as much as possible, the predisposing and exciting causes, and restore the healthy action of the digestive organs. An emetic of comp. powder of lobelia, with a solution of bi-carb. soda; follow with an alcoholic vapor bath, an active cathartic to produce, say, two or three evacuations, and the bowels should be moved at least twice daily during the continuance of the attack. The neutralizing mixture with the addition of podophyllum and leptandrin, as:

R—Syr. Rhei et Potass.	.....	℥ j.
Fld Ext. Podophyllum.	.....	gtts. xxx.
“ “ Leptandra Vir.	.....	gtts. lx.

Give half at a dose.

Diuretics will be found useful, and among our best is eupatorium purp. A good combination is:

R—Fld. Ext. Eupatorium Purp	.....	℥ ij.
“ “ Podophyllum.	.....	℥ ij.
“ “ Leptandra Vir.	.....	aa.
Bi-Carb. Soda	.....	℥ iv.
Aqua	.....	℥ ij.

Dose.—One teaspoonful, and repeat every two hours until it acts freely on liver, kidneys and bowels.

Local applications are of no value, and need not be used, unless the patient is clamorous for them, when a stimulating liniment, as directed for chronic rheumatism, may be used, though it is best to simply keep the affected limb on a level with the body, and cover to protect from the air.

After slight attacks, and before the constitution has suffered much, little or nothing need be done during convalescence. But in violent and protracted cases—particularly after repeated attacks have impaired the constitution, medical treatment during convalescence is of the greatest consequence. In cases of this kind it is necessary to restore the energies of the digestive organs as well as of the liver, skin and kidneys. For this purpose small doses of podophyllin with the occasional use of syr. rhei et potass. and a bitter tonic, in general answer very well. Gentle exercise must also be enjoined. The application of a

flannel roller to the affected parts highly useful when permanent swelling and debility remain.

CHRONIC GOUT.

A strong gouty diathesis, without sufficient constitutional vigor to produce high inflammatory affection of the joints.

Symptoms.—It is characterized by prominent and harassing symptoms of dyspepsia; irritability of temper, and despondency and irresolution of mind, palpitations, with a sense of tightness at the pit of the stomach; cramps in the extremities, particularly at night; dull pain in some of the joints, attended with a sense of numbness and weight in the affected part; sleep unsound and interrupted by sudden startings, permanent œdema left in the affected parts; tenderness and aching of the ankles, rendering progression difficult and painful; skin sallow, dry and contracted; bowels costive, and in very bad cases much general debility, wasting of the flesh of the lower extremities, and a dry and short cough, etc.

Treatment.—The principal indications in the treatment of this form of gout are: to strengthen the system in general and the stomach in particular. For this purpose a mild and digestible diet, with gentle exercise, cold bathing, mild aperients, and the occasional use of the syr. stillingia comp. with iodide of potass. and small doses of podophyllin, are our most useful remedial measures. To relieve the distressing nervous irritation, papaver, lactuca or phytolacca are to be occasionally used. Tonics seldom serviceable.

PURPURA HEMORRHAGIC.

This affection consists of very small specks—pimples, distinct and in patches accompanied with general debility and some fever.

Symptoms.—Lassitude, fullness, pain in the limbs, debility and depression of spirits, pulse frequent but small, heat and flushing of the surface with perspiration; sallow, emaciated; swelling of the lower extremities. Duration very indefinite, may be a few days, or a few years; occurs at all periods of life, but mainly about the age of puberty and upwards.

Treatment.—In treating this disease the diet is all important—no vegetables, or articles to form vegetable acid. Give the following:

R —Glycerine	3 viii.
Phosphoric Acid Dil.	5 j.
Fld. Ext Prunis Virg.	3 iv.

Mix. and give a teaspoonful before each meal. After meals give twenty drops muriatic tincture of iron in water. This should be continued for months; cold salt water baths will be found of great advantage and may be used daily.

AMYLOID DEGENERATION.

We find in the human body two substances nearly allied yet not identical, both, however, possessing the same chemical properties as starch, or a similar substance. It is well known that many cases are found where the liver, spleen, and kidneys have undergone this degeneration. For instance, we often find small bodies analagous to vegetable starch, both in chemical complexion, shape and size—frequently found in the nervous system. The prostate gland of every male adult presents this appearance. This sometimes accumulates in such quantities as to produce prostatic concretions, and other forms which are sometimes found in the lungs. In some cases this starch-like mixture forms and is deposited between the elements of tissue. In others, the whole component parts become filled with starch-like or amyloid substance.

To this condition is often due the thickening of arterial walls and consequent diminished calibre. This morbid process goes on involving adjacent tissues, and if not arrested in a short time, the whole functions are altered. Usually we find several organs involved at the same time, and rendered incapable of performing their functions. Patient soon assumes a cachectic, or broken down appearance, pale skin, loose flesh, strength rapidly gives way, urine becomes albuminous, dropsy supervenes, diarrhœa sets in, when the digestive functions are involved. At this stage of the case, medical science offers no cure. Our treatment is only palliative. Among the obstacles in the way of a successful treatment of this condition is the difficulty of arriving at a proper diagnosis, especially when the liver, kidneys and spleen are involved; and many patients suffer and fall victims to the degeneration without exciting a suspicion of their condition in the minds of their attending physician. Amyloid degeneration is usually associated with tubercle, disease of bone, scrofula, syphilis, etc. We often find in struma or phthisic amyloid degeneration associated with it, and in these cases we find the progress of the disease more rapid and less tractable. It is generally associated with the impaired condition of the nervous system, or a want of nerve force, and is often present in struma, phthisic and Bright's disease.

Treatment.—In the early stage of the process of degeneration, if we can detect it, there is nothing acts better than nerve tonics, with something to improve the quality and increase the quantity of blood. Among our best remedies is the syrup of hypophosphite, soda, lime and iron, one teaspoonful before each meal. Give, say, half hour after meals :

R—Fld. Ext. Cinchona.	} aa
“ “ Alnus Rub.	
	} 5 j.

Dose.—Thirty to forty drops in water, When the liver is involved we shall find the nitro-muriatic acid dil. act well, and this may be substituted for the alnus in the above prescription.

FISTULA IN ANO.

This trouble arises from a variety of causes. The presence of foreign bodies in the rectum, causing inflammation, ulceration and perforation. It is sometimes a symptom of the strumous or scrofulous diathesis, and may originate in a deposit of tubercular matter on a fold of the lower bowels, finally softening and producing ulceration, like we have in tubercular deposit in the lungs. We often have fistula in connection with tubercular consumption. We have several kinds of fistula. Complete, when it passes from the inside of the bowels and opens externally, permitting the passage of fœcal discharge through the opening. Blind, when the mucous membrane of the bowels close after having been perforated or ulcerated. The external opening, often small, and difficult to find, generally near the anus, but sometimes one or two inches distant. Complete fistula is most annoying on account of the wind, and the contents of the intestines passing along its tracks, causing irritation, painful, spasmodic contraction of the muscles. There is an utter incapability of the fistula to heal of itself, or disappear when once formed. The internal surface is lined with a false membrane, capable of secreting. Thus keeping up the discharges.

Causes.—Constipation long and continued, by distending the rectum and permitting lumps of hardened fœces to burrow in the bowels, excite inflammation, ulceration, and lead to perforation.

Treatment.—Among the old school practitioners we have none, I believe, who admits the possibility of a cure without the knife; happily for those who are affected with fistula the American practice offers a more rational, safe and effective treatment. We should never attempt to cure fistula until the general system is first prepared. First, then, we would improve the general health by a good alterative and tonic course.

℞—Tr. Cinchona Comp..... ʒ vii.
 Acid Phos. Dil..... ʒ ij.
 Syr. Simplex..... ʒ vi.

Mix.—Dose.—One teaspoonful before each meal.

℞—Tr. Nux Vomica } aa.
 " Sanguinaria..... }
 Fld. Ext. Helianthemum..... } ʒ ss.
 " " Alnus Rub..... }

Mix.—Dose.—Twenty drops in water after each meal. Inject up the rectum three times a day :

℞—Permanganate Potass..... grs. xxxii.
 Aqua Pura..... ʒ o. j.

Dissolve, and use two ounces at a time.

Having carried out this treatment for a month or two, we would proceed to destroy the membrane, and heal the sinuses or fistula. The destruction of the membrane is absolutely necessary before anything else can be accomplished, as the fistula can never adhere or heal until this is done. For this purpose get a small syringe, the smallest you can obtain, and inject :

℞—Zinc Chloride..... grs. xl.
 Rose Water..... ʒ x.

Inject three times a day up the fistulous opening. In a few days inflammation will set in, and we shall soon have the false membrane destroyed and the fistula healed. Keep the bowels soluble so as to prevent straining and too much pressure on the new formed parts until fully healed.

This treatment will be found all that is required in ordinary cases; those of long standing, or complicated nature, will require several months treatment, and we should alternate between alteratives and tonics, looking well to the cause upon which the irritation depends, and remove, as far as may be, all sources of irritation, both local and constitutional, or our best directed efforts will fail. I never use the knife in fistula in ano.

VENEREAL DISEASE.

I shall consider venereal disease under this head, as it is in its secondary effects a blood disease, is taken up by the absorbents and contaminates the whole system. There are two distinct poisons communicated by sexual intercourse—one the poison of gonorrhœa, the other the poison of syphilis. This poison is generated by promiscuous intercourse and want of cleanliness. The natural sexual connection is one of more or less animal magnetism, and where this is mutual and reciprocal, it is not injurious unless carried to excess; but, on the other hand, is a natural function, and a natural gratification is not inimical to health, but where one woman receives several males in a mechanical sort of way, she soon becomes a vehicle of disease, and is capable of conveying a poison worse than death. It is unnecessary for me to go back to write up the origin of venereal disease—it is a disease that is generated and propagated by contagion, the circumstances, as I have mentioned, existing.

Venereal disease may originate with one who has not come in contact with it, in fact gonorrhœa may result from sexual intercourse with one who has leucorrhœa, or menstrual discharges, or a strain or blow sometimes will produce a mild type of inflammation which will pass off of itself in a few days, but this same contact, through want of cleanliness, may lay the foundation for regular gonorrhœa. In the venereal poison we have two distinct types—one of low degree producing a specific poison incapable of contaminating the blood, the other of a higher degree of intensity, always affecting or poisoning the blood and producing a systemic syphilis. Both poisons produce specific inflammation of mucous surface, inflammation of the true skin, a pustule or pock. The mildest type produces a gonorrhœa, a chancre or pock.

GONORRHŒA.

If gonorrhœal matter fall on a mucous membrane, there will be a discharge of infectious matter, capable of reproducing the same disease. Although the appearance of gonorrhœal matter is purulent, it has not really the character of common pus. If you examine the discharge, you will find that, though there may be globules of pus, the greater part of the discharge is mucus.

Symptoms.—When gonorrhœal matter is applied to the urethra the characteristic symptoms generally arise in three or four days after its application.

The patient first experiences a sense of titillation in the urethra as if a drop of urine were contained in it. This directs his attention to the part, and he finds that the lips of the urethra are red, and that there is a slight mucous discharge. Afterward the urethra begins to be affected with considerable heat, and pain is experienced in voiding the urine.

The pain increases till it becomes, in many cases, excessively severe; there is an appearance of threads mixed with the urine which arises from the adhesive inflammation in the urethra. The next effect is a considerable diminution in the stream of urine, the swollen state of the urethra contracting the size of the canal. The urine is often discharged in two, three or more streams, in consequence of the contracted and irregular state of the urethra. At first the discharge from the urethra is mucous, but after a little time it assumes a purulent appearance. The matter becomes yellow, and if the inflammation is very considerable, green; and it is often intermixed with blood, so as to give it a sanious appearance.

The usual limit of the appearance of gonorrhœa, after connection, is from four to seven days, it is seldom under four, and very rarely exceeds seven days. I have known it, however, occur within twenty-four hours after connection, and sometimes a fortnight, or a longer time, will elapse before it appears. The time that gonorrhœal matter will continue to discharge is quite indefinite.

Gonorrhœa will wear itself out in a sound constitution and temperate habits, in six or eight weeks. In some constitutions it is difficult to cure with the best of treatment. In no case ought you to rely on the efforts of nature for its cure; for, in general, you may very much expedite it by adopting a judicious method of treatment. Besides the symptoms already enumerated, as the external effects on the urethra, gonorrhœa takes, also, an internal course. It does not confine itself to the beginning of the urethra, but extends along the course of that canal, and often produces an erysipilatous inflammation of the glands and frænum, occasioning effusion into the prepuce and phymosis. The absorbent vessels on the dorsum penis often become enlarged and hard, and produce little abscesses, which go on to suppuration.

The glands of the groin are sympathetically affected, and, in a first gonorrhœa, seldom fail to become enlarged and painful.

They very rarely go on to the formation of matter, if proper attention is paid on the part of the physician.

Where the glands of the groin are affected by gonorrhœal matter, several are

attacked at the same time ; whereas, in the absorption of the poison of syphilis, a single gland only is enlarged on each side.

The other circumstances to be considered, with regard to the internal course of gonorrhœa, are inflammation, stricture, chordee, abscesses in the lacunæ, etc. Of these we shall hereafter treat.

Inflammation, although commencing at the lips of the urethra, very often extends along the course of that canal, so that there will be effusion further than the original seat of the inflammation.

Irritation and inflammation, also, take place in the corpora spongiosa, producing that painful state of the parts termed *chordee*, in which the penis feels as if it were bound down, so as to prevent a complete extension. The penis is sometimes curved, and sometimes turned considerably to one side.

Another effect is, an inflammatory state of the muscles of the perinæum, accompanied with great irritation and violent spasmodic contractions.

Whenever an old man gets a gonorrhœa, it is generally accompanied with an enlarged state of the prostrate gland ; the bladder becomes affected in consequence of gonorrhœal inflammation ; it becomes highly irritable, and the patient experiences a constant inclination to urinate.

From what we have stated in regard to the symptoms and results of gonorrhœa, you can very well convince yourself that it produces various effects, not only in its external, but in its internal course.

Cause.—The cause of gonorrhœa is undoubtedly inflammation of the lacunæ of the urethra, and particularly of the lacunæ magna, from the previous application of gonorrhœal matter to the lips of the urethra.

The inflammation is of the erysipelatous kind, but there is no appearance of ulceration. If ulcerations were produced, the membrane of the urethra would soon give way. It merely gives rise to a specific secretion from the mouths of the vessels. Ulceration does occasionally take place in the lacunæ, but not in the urethra itself.

The discharge of gonorrhœa is not unfrequently entirely suspended by constitutional causes, but the symptoms will return as soon as the constitutional irritation ceases.

A man shall have an abundant discharge from the urethra, considerable pain, and even chordee, and if he should get a fever the discharge disappears, the pain ceases, and he will be entirely free from all symptoms of the disease for a period of from seventeen to twenty days ; as soon, however, as he begins to recover from his fever the discharge of matter will be resumed, the pain and chordee will return, and a long time may elapse before the disease will be removed.

Treatment.—You will generally find the cure of gonorrhœa difficult in proportion as the constitution of the patient is disposed to strumous affections. If a patient has pimples on his face, enlargement of the glands of the neck, a thin skin and irritable fibre, you may expect to have great difficulty in curing gonorrhœa.

The treatment of gonorrhœa is founded on two principles ; the disease may be either treated simply by diminishing inflammation, or it may be treated by

producing a change in the action of the part by which the disease is removed in a short period.

Your treatment must vary according as the case may be a first attack or not ; for it seldom happens it can be cured by the same means which may be employed in subsequent attacks. When a patient applies to you for his first case there will be generally a great deal of inflammation, and I advise you always to purge actively with :

R—Podophyllin gr. ii.
Bi-tartrate Potass. ʒ ii.

Make four powders and give one once in three hours till it acts freely.

Then, if there is much pain and swelling apply a poultice of soda cracker grated fine, upon which sprinkle pulverized lobelia herb, and apply to the penis at night. Give internally :

R—Fld. Ext. Baptisia } aa.
" " Uva Ursi }
" " Eupatorium purp. } ʒ ss.
" " Papaver }
Aqua Calcis ʒ v.

Dose.—One tablespoonful once in three hours.

R—Oil Erigeron } aa.
Alcohol } ʒ j.
Syrup Simplex ʒ vi.

Dose.—One teaspoonful once in three hours ; let each one of these be taken daily for two or three days, when you will find the discharge very much diminished, then :

R—Sulph. Zinc } aa.
" Hydrastia } gr. xxx.
Aqua Camphor ʒ viii.

Inject with small syringe three times a day, or :

R—Sulph. Zinc gr. xv.
" Morphia } aa.
Plumbi Acetate } gr. v.
Aqua Pura ʒ viii.

Use as above, or :

R—Permanganate Potass. gr. iv.
Aqua Distil ʒ viii.

As above, or :

R—Fld. Ext. Myrica Cer } aa.
" " Hydrastis Can } ʒ ss.
Aqua ʒ viii.

As above, or :

R—Chloride Zinc gr. viii.
Aqua ʒ viii.

As above.

The above could be multiplied, but among them you will find the very best.

We have never used the nitrate of silver ; it will cause stricture, while neither of the above will.

Various other internal prescriptions, such as balsam, etc., are prescribed, but are apt to irritate the stomach. We may make such other combinations for internal use as the case demands. If you are partial to copaiba, then the following will be found excellent :

R—Bals. Copaiba.....	} an.
Pul. Cubeba	} grs. ii.
Ferri Sulp. Ex.....	grs. ss.
Venetian Terebinth.....	grs. i-ss.

Make into pills, let each pill contain the above proportion and give one pill three times a day.

Injections ought not to be used in the first instance, but having waited from two to five days, until the inflammation has in a measure subsided, and the extent of discharge diminished, you may then employ them with benefit and safety.

We have now gone through the different steps of your treatment for a first attack of gonorrhœa ; but if a patient applies to you for a second or third case, you will not proceed in the same way, but give him :

R—Syr. Stillingia comp	℥ iv.
Tr. Cubeb	℥ j.
Iodide Potass.....	grs. xxx.

Mix, and give a teaspoonful three times a day, which will in general put a speedy stop to the discharge.

The inflammation of a second case is comparatively slight, so that the treatment which is necessary to subdue inflammatory action in a first case is generally unnecessary in subsequent attacks.

All that is usually required is to give the above prescription for three days and then begin with some of the injections mentioned.

Various injections are employed in the treatment of gonorrhœa ; so that if the one you first use does not speedily put a stop to the discharge, it is much better to vary your injection than to persist in the use of the same, and thereby lay the foundation of stricture.

Half a grain of sulph. of copper in an ounce of rose water is a powerful injection. The use of irritating injections must necessarily be regulated by circumstances ; if they produce much inflammation you should suspend the use of them ; and if, on the other hand, they excite no pain at all, you may gradually increase their strength.

If these attempts of cure prove ineffectual, I would recommend you begin immediately the use of bougies with injections.

The use of bougies will increase the discharge for a time ; but being combined afterwards with the use of an injection of the sulph. of zinc, will generally succeed in effecting a cure.

With respect to the number of times the patient should inject, three or four times a day will be quite sufficient.

As to the strength of the injection, it should be increased so as to produce a slight degree of irritation ; but it is better to vary the injection than to increase its strength in any great degree.

There are other means of curing gonorrhœa, by producing a change in the action of the urethra, by the use of cubebs. Cubeb appears to produce a spe-

cific inflammation of its own on the urethra, which has the effect of superseding the gonorrhœal inflammation. It is a remedy of a most useful and admirable kind, and may be given with advantage even in the inflammatory stage of gonorrhœa, provided the inflammation does not run excessively high. In the early stages, when the inflammation is just beginning, it often succeeds in removing the disease in a very short time. Although cubebs are so serviceable alone, the greatest advantage may be derived from combining their use with that of the balsam of copaiba, etc. If we have chordee, then apply a poultice of lobelia herb, and give :

R—Fld. Ext. Lupulus	} aa.
“ “ Papaver.....	
	} 5 ss.

Dose.—Forty drops before retiring.

If strict attention is paid to the rules I have laid down for your treatment of gonorrhœa, I think you will find it the most likely course to contribute to the maintenance of your professional character and the welfare of your patient

The subsequent surgical subjects which we shall now consider, are the *consequences of gonorrhœa*.

SYMPATHETIC BUBO.

This is usually the result of inflammation of glands of the penis. The inflammation extends on the outward surface of the glands, the absorbents of the dorsum of the penis becomes enlarged, and if you rub your finger along the dorsum you feel them hardened like a knot or cord, and frequently connected with the glands near the pubes.

A bubo of this kind rarely suppurates ; now and then you will meet with one that suppurates, but only in very irritable constitutions. When the inflammation extends from the penis to the glands of the groin, these become inflamed also, and enlarged ; and it is not at all surprising for a swelling after a gonorrhœa to come on in the groin ; a patient under such circumstances is afraid of bubo, and alarm is excited in his mind of its being syphilitic ; you may, however, calm his fears and tell him that it is a common concomitant of gonorrhœa, and that he need not be uneasy.

The distinction between a sympathetic bubo, and one from syphilis, consists in this circumstance : In general one gland only is enlarged in syphilis ; but in a sympathetic bubo you most frequently find a chain of glands affected.

In the groin there are two sets of glands, one just above Poupart's ligament, and the other two inches or an inch and a half below it. The lower is seldom enlarged from sympathy, the upper frequently,

Treatment.—The plan of treatment in sympathetic bubo is the same as that for inflammation in any other part of the body ; give cathartic and apply discutient ointment, and advise rest.

Whether the glands will suppurate or not depends greatly on the mode of treatment.

GLEET.

Gleet is a disease very difficult of cure. It is said to be that stage of gonorrhœa when the discharge ceases to be infectious; but for my own part, I doubt whether the gonorrhœal discharge ever ceases to be infectious; consequently, I consider that you ought to pronounce that the discharge from gonorrhœa which terminates in gleet, never loses its power of producing infection.

Symptoms.—The discharge of gleet is generally transparent at first, afterward yellow, and if there is much excitement, green. If the excitement is very considerable, the discharges will be tinged with blood. It is rendered purulent and bloody from excesses of different kinds. The discharge of gleet does not proceed from the vesiculæ seminales, or Cowper's glands, or the prostate, but from the lacunæ of the urethra; and what you hear about seminal weakness is nothing but folly and absurdity; there is no truth at all in it,

A discharge now and then comes from the vesiculæ seminales through the urethra, when a person has a costive motion, a drop or two of mucous or a ropy fluid, proceeds from the vesiculæ seminales, and is quite a different discharge from that called gleet. Sometimes there will be a discharge from a stricture, but it does not produce infection; and not unfrequently you find a discharge from the urethra from an abscess of the lacunæ, but not of a virile nature.

Treatment.—As we have before mentioned, the cure of gleet is a very difficult thing to accomplish, and you must often make use of both constitutional and local remedies. Constitutional treatment should be alterative, diuretic and tonic.

The syr. stillingia comp. with iodide potass, and the addition of eupatorium, cubebs, etc., will be found effectual in most cases.

When the constitutional treatment is unsuccessful, you must have recourse to bougies and injections.

A bougie should be passed every other day, according to the irritability of the patient, making use of an injection at the same time; it may be well to apply to the urethra an ointment. The best injection is the chloride of zinc, about one grain to three ounces of water, to begin with. If it should not however be productive of any good, in the proportion of half a grain to an ounce of water, do not use it any stronger, for it is likely to produce considerable irritation. The sulphate of copper and zinc have also been recommended.

Intercourse with women often causes a return or increase of gleet. In such cases it usually gives suspicion of a fresh infection; but the difference between this and a fresh infection is that here the return is almost immediately after the connexion.

Gleets in women are cured nearly in the same manner as those of men. The astringent injection used may also be stronger than those intended for male patients.

GONORRHŒA, ETC., IN FEMALES.

Gonorrhœa in females is rather less violent than in males, and the seat of the complaint is in Cowper's glands, on each side of the urethra, at the os externum.

Symptoms.—In gonorrhœa with females, there is a great degree of surrounding inflammation; the orifice of the meatus urinarius, and the lacunæ, discharge matter. There is pain in making water, and in some severe cases it commonly happens that there is considerable irritation of the bladder, of which the shortness of the meatus urinarius is the cause. The inflammation at the orifice extends down the meatus urinarius to the internal coat of the bladder. The meatus urinarius, Cowper's glands and the extremity of the vagina are red, and the carunculæ myrtiformes swollen.

Treatment.—As to the treatment of gonorrhœa in females, you must depend on diluent drinks and purgatives, and relieve any local inflammation by the use of lotions.

We have no medicine which has a specific action over the discharge in females, and the best lotion you can recommend is :

R—Sulph. Zinc.	} aa.
Acetate Lead.	
Aqua.	
	5 j.
	0 ij.

A sponge dipped in this should be introduced into the vagina, and be allowed to remain there, though often changed.

Pudendal Discharge.—Children from one year old, and even under, up to the age of puberty, are frequently the subject of a purulent discharge from the pudendum, chiefly originating beneath the preputium clitorides; the nymphæ, orifice of the vagina, and the meatus urinarius, are in an inflamed state, and pour out a discharge.

The bed linen and the rest of the clothes are marked by this discharge, and from its bearing a strong resemblance to gonorrhœal matter, it has repeatedly been thought by parents that their children have been injured, suspicion has been excited against some unfortunate person as the offender, and several cases have actually received the punishment of the law for the offense of rape, because the medical witnesses were not conscious of the true nature of the affection; therefore, my young friend, be particularly careful to bear this complaint in mind, and never let it be yours to repent the ignominious punishment of an innocent fellow-creature.

When a child labors under this discharge, there is a heat of the parts, slight inflammation, and this sometimes increases and goes on to ulceration.

Notwithstanding violation has been suspected from the discharge alone, you must be cautious in admitting the evidence of the child itself, for this last paragraph fully shows that although the parts may be abraded (by ulceration) it is no further proof that a rape has been committed.

The treatment you must adopt in cases of pudendal discharge is the lime water, with sulph. zinc, and give rhei et potass. combined with leptandra.

SYPHILIS.

There are two poisons, as I have before mentioned, communicated by venereal intercourse, the one of gonorrhœa and the other of syphilis. One, the poison of gonorrhœa, which, falling on a mucous surface, produces from that surface a discharge of matter which is infectious; the other, the poison of syphilis, which, applied to the skin, or, as far as is at present known, to any surface, produces inflammation and ulceration, forming a sore called chancre, which being received into the glands of the groin, occasions bubo, and being conveyed into the system, circulates with the blood, produces ulceration on different parts of the body, on the mucous membrane of the throat, the skin, the periosteum and bones.

We will first go through the various symptoms or consequences of syphilis, and then institute more inquiries on the true nature of the complaint.

CHANCRE.

The time at which the effect of the poison that produces chancre makes its appearance is uncertain; the chancre, however, generally appears three or four days after connection, and from four to seven days is the average time.

Symptoms.—The poison first produces inflammation, then ulceration; the inflammation is attended by a pimple arising from the surface affected, which is like a common pimple, except that it is of a deeper color; instead of being quite florid, it is of a darker hue. The pimple is surrounded by a kind of erysipelatous inflammation; an ulcer forms in the centre, and then a pit forms in the body of the sore, which is often of considerable magnitude and extends beneath the skin. The surrounding edges of the sore are hard and ragged, its surface is yellow and the margin red, and if you were asked if a sore was a chancre or not, you would answer: I must feel it first, and not decide by merely looking at it.

You would then lift up the part between your fingers, and if you found a *hardness* beneath this would be a very good criterion of its being a syphilitic sore, for it is neither in the ulceration nor in the yellowness of the surface, nor the ragged edges, but in the color and hardness of the sore that the characteristic marks of chancre manifest themselves; from the presence of these you form an opinion, and are enabled to say positively if the sore be a chancre.

Chancre assumes very different appearances in different persons, and also in the same person, under different degrees of irritation, and according as it is accompanied by more or less of inflammation.

So that if you ask me whether it is possible to determine that a sore on the penis is not chancre, I should tell you that I believe it is impossible for any man positively to say that it is not.

We will now speak of the varieties of chancre and the causes which more frequently produce them. If the poison be applied to a sore or excoriation, it

produces ultimately a syphilitic action, as is witnessed afterward in bubo and secondary symptoms, but it is a long time before the venereal action is excited, and in these cases you will find that the sore has neither a surrounding hardness or a livid color. Simple, soft chancre belongs to this class, and is never capable of contaminating the constitution. The following are the peculiarities of these ulcers: The inoculation of some part with the specific virus sets up inflammation and a vesicle is formed, which in about a week, if not disturbed, will break and leave a sore scooped out and well defined in its character, discharging a profuse quantity of pus, soft to the feel if grasped between the fore-fingers and thumb. If simple dressing is applied to such a sore and ordinary cleanliness is observed, it will heal in a month or six weeks; the secretions are abundant, purulent and inoculable; instead of one, there are generally three or four, extremely liable to complications, as inflammation of the lymphatics of the groin, phagadenic ulcers, etc.

When the chancre is produced by the application of the venereal virus to an excoriation or abrasion, there is some difficulty in pronouncing its nature; the sore may have the appearance of being syphilitic, but you must hesitate before you give a positive opinion; it requires time to decide it, and you may say to the patient that there is considerable doubt as to the nature of the sore; it may be simply an excoriation, or, on the other hand, it may be a syphilitic sore. Your best plan is merely to apply some simple application to the part and wait, if it be syphilis, till the secondary symptoms appear, when you must have recourse to constitutional treatment.

Chancre situated on the frænum is different to what has been described attacking the other parts. A chancre in this situation generally rapidly destroys the part, unless treated early; it is more irregular in its appearance than chancre in other parts, and does not assume a character similar to those seated on the glands.

When a chancre is situated on the prepuce it is also characterized by some peculiar symptoms, and likewise when seated on the corona glandis.

If the chancre happens on the edge of the prepuce, a good deal of effusion into the cellular membrane takes place, and *phymosis* is produced. When the sore is situated just where the skin doubles over the penis it is extremely troublesome; there is considerable swelling, also a difficulty in drawing back the skin. In this situation it seldom fails to produce phymosis. If the chancre be on the corona glandis, or between it and the frænum, you often find it extending deep and producing sloughing of the part, and even of the glands itself, which is not at all an uncommon result of deep seated chancre at the corona glandis.

Another circumstance which gives rise to a variety in the appearance of a chancre is when it ulcerates deeply into the cellular tissue; a chancre on the skin is very slightly irritable, but if it passes the skin and extends into the cellular tissue, it assumes a disposition to ulcerate and slough.

A chancre under the skin heals under the use of medicines and external applications; but if once it enters beneath the skin and inflames the cellular tissue

it becomes irritable, sloughs, and is attended with danger, the danger arising when the chancre extends beneath the part on which it began.

When chancre is on the skin and does not produce deep ulceration it is a disease slow in its progress and easy of cure, but if, on the other hand, it extends deeply into the part it proceeds with rapidity, and those acquainted with the disease dread it, knowing the extended sloughing which will be produced.

Causes.—Of all the causes of varieties of chancre one of the most common is the habit and constitution of the patient. The variety is not only produced by the previous mode of living, and the constitution of the patient, but any act of intemperance, excess of any kind, or anything that hurries the circulation will alter the action of the part.

So, if two persons be attacked with chancre, the one not of an irritable habit, and the other being very irritable, you will find in the first that there would scarcely be any inflammation, whilst in the second it would be violent, and of an erysipelatous character; indeed, under these circumstances, if the patient be not very carefully managed he will be in considerable danger. So a man with chancre to-day, which has a healthy appearance, shall to night indulge in some act of debauchery, to-morrow he will have a bloody discharge from the sore, inflammation round the edges, and an irritable state of the parts, which you will soon find assuming a sloughing disposition.

When a chancre goes on sloughing there will be considerable previous inflammation, and a great increase in the frequency of the pulse.

The pulse will be generally from 120 to 130; the inflammation of the erysipelatous kind, extending round the chancre, and, in a short time, the sloughing process commences by which the penis is lost.

The time at which a chancre appears after connection is from four to seven days.

If, however, there be gonorrhœa also, it prevents the appearance of chancre so early; so that if a person is affected with two poisons the one delays the appearance of the other.

Treatment.—For soft chancres apply tinct. chloride ferri to the ulcer, repeat three times a day and cover with lint; this will, in two or three days, form a dark eschar which will drop out, leaving a simple sore, which will readily heal in a week or ten days under the restorative influence of white oxide zinc ointment or elder flower ointment.

In scrofulous patients the soft, or non-infecting, chancres frequently take on a horse-shoe shape and are termed serpigenous. The ordinary treatment is not effectual here, we must administer a thorough alterative course, tonics and good diet. No good is obtained by cauterization, for the true character of the sore will appear again and again until the tubercular condition is modified by alteratives; so, instead of using nitric acid or caustic potassa the following should be used: Paint the sore every two days with the fluid ext. sanguinaria, and dress with tramonium ointment.

If the habit is gross, the patient living in an ill-ventilated abode, improper diet, and all other hygienic laws are violated, or where the constitution is terribly depressed, from whatever cause, this form of chancre may become phage-

denic. When this happens the sore is irritable, exquisitely painful, ragged edges, eating and spreading irregularly. Then our mode of treatment is obvious. Apply nitric acid to the sore, dress with iodoform ointment, or sprinkle iodoform in powder on the ulcer.

The cause of the phagedenic ulcer should be well appreciated; it is frequently the result of a broken-down condition of the vital powers.

Nourishing food, stimulants, thorough hygiene, cinchona, hydratis, iron, phosphorus, are the most efficient remedies, a yeast poultice is also valuable.

Indurated, true, or infecting chancre.—The treatment for this is plain. Apply nitro muriatic acid to the ulcer, and repeat daily for three or four days, then dress with zinc ointment, or,

R—Iodoform.....	grs. xxx.
Fluorine.....	3. ss.

Mix thoroughly and keep constantly applied. If this treatment is adopted within the first eight days constitutional infection can be prevented; if later than that time we gain nothing by local treatment, only to destroy or change the sore, and you should put your patient on a regular constitutional course at once. In fact, of late years I am in the habit of commencing with regular constitutional treatment from the beginning, and if this was adopted and treatment carried out upon the right line we should have no trouble from systemic or constitutional syphilis. Mercury, in all its forms, though the universal resort of the regulars, has long since proved worse than the original disease. Mercury may hold the symptoms in abeyance for a few months but it will manifest itself in due time, and often combined with mercurial poisoning. The constitutional effects of indurated chancre do not appear at once, but there is a period of incubation varying from six weeks to six months. Much will depend upon the constitution and habits of the patient, and also his vitality. Some are proof against the contagion, while others are readily affected, and the system easily contaminated.

The mode of absorption is by the veins to the lymphatics, hence the lymphatics of the groin are found hard, indurated, and to the feel resembling that of small bullets under the skin. The systemic, or constitutional effects, will be noticed under their proper head.

SYPHILITIC BUBO.

The venereal poison is taken from the chancre on the penis to the glands of the groin, and in its course usually irritates one of them. Now and then the matter proceeds through them without producing any irritation, but more frequently it excites inflammation, and the common effects of inflammation if it is not opposed, that is, if a proper treatment be not pursued, the gland inflames and suppurates. In syphilis it commonly happens that only one gland is affected in either groin; now and then the contrary takes place, but in general, when several glands are enlarged it is from irritation and not from the absorption of the venereal virus.

When there is only one gland enlarged, and it goes into a suppurating state, it is usually the consequence of the stimulus of the syphilitic virus. Therefore you may conclude if several glands be enlarged that it is not the effect of syphilis.

Symptoms.—The symptoms of syphilitic bubo are the same as those of common abscess, with this exception, that there are evening exacerbations. A syphilitic bubo may be known from a sympathetic swelling in the groin by its being in a line with Poupart's ligament, and by the presence or previous existence of a venereal sore on the penis.

Treatment.—When you are called on to treat a syphilitic bubo, you must pursue a constitutional course, as in chancre, and at the same time you are employing constitutional remedies local means should not be neglected. For local means I would recommend that discutient ointment should be applied to the part. It sometimes happens, notwithstanding the means that you employ, the pain, swelling, and the disposition of the gland to suppurate, increase. This will be known by sharp pains darting through the part and a pulsating feeling in it, for when these occur the suppurative process has generally commenced; you must then apply a poultice, give a cathartic and continue constitutional treatment. When a bubo acquires a considerable magnitude, it is usually the result of debility and is very apt to become chronic. Endeavor to lessen the size of the swelling and the inflammation by poultices and acting on the bowels in order to promote the secretions, for this should be your grand object in all these cases; take care, at the same time, to give that kind of nourishment which will best support the system without creating any undue excitement. You should also endeavor to promote absorption of the gland by the application of the muriate of ammonia and iodide potass.

If the means for preventing the suppurative process do not succeed, suppuration has commenced and matter can be felt fluctuating; it will be right to make an opening for the escape. The opening should be small, and should be made with the lancet as soon as any pus can be felt, by which plan the surrounding swelling will be lessened, the inflammation diminished, absorption rapidly produced.

SYPHILITIC AFFECTIONS.

The venereal poison when it passes the absorbent glands in the groin, goes into the system, but in its course affects no other glands than these; it is carried through the thoracic duct to the blood, and when in the blood it appears to affect but three parts of the body. The three parts of the body capable of being acted upon by the absorption of the venereal virus into the system are, the mucous membrane of the nose and throat, the skin or surface of the body, and the bones with their periosteal covering. These three are the only parts liable to syphilitic action after the virus has entered the blood; and with respect to the organs essential to life, these are not capable of having a syphilitic action excited in them; only in those parts of the body subjected to the influence of

external causes is the syphilitic action observed ; the internal organs are entirely free from it ; the brain, the viscera of the abdomen and chest are never affected by it ; even the mucous membrane of the interior of the body is not affected by it.

SYPHILITIC DISEASES OF THE MOUTH AND THROAT.

Symptoms.—When the syphilitic action is set up in the mouth, either the mucous membrane of the floor of the nose or the roof of the mouth becomes red and inflamed ; a pimple forms on it and ulcerates, the bony palate is laid bare and exfoliates. When the bony palate exfoliates, a communication is set up through the mouth and nose, fluids return through it and the voice becomes nasal ; there is also a most truly offensive discharge. The tonsil glands become affected with sores, which have exactly the character of a chancre, having rugged edges, a yellow surface and a livid color in the surrounding part ; a sense of dryness is felt in the throat, which spreads up the eustachian tubes to the ear.

When the venereal virus attacks the mouth and throat, it proceeds to the pharynx, and not unfrequently ulcerates clean through it and the cellular membrane behind to the vertebra ; but the worst effects of all are produced by its action on the larynx, and unless immediate attention is paid to it, it will destroy life in a very short period. Attending this last affection, there is also a loss of voice, so that you are obliged to put your ear to the patient's mouth, he speaks in so low a whisper. This effect of the venereal disease more frequently destroys life than any other,

Treatment.—The treatment required in syphilitic sore throat must depend on the parts under its influence and the nature of attending circumstances. It will be necessary to make use of constitutional treatment, if the part is not too irritable, and the sore has no other character than in a healthy person and does not affect the mouth more than is generally done when syphilis appears in any other part of the body. Here you must endeavor to prevent the disease making those dreadful ravages on the soft palate and superior maxillary bone, which require artificial means to close it. If the roof of the mouth itself becomes affected, a little dilute muriatic acid will assist exfoliation and prevent the aperture from being very large.

When an aperture has been produced in the roof of the mouth, I put a piece of lint in the opening, and the consequence is, that the person does not speak through his nose so much, and is not exposed to the observation of his friends. As soon as the exfoliation has taken place, it will be right to introduce some extraneous substance to fill up the aperture.

When venereal sores exist on the tonsils, local means are not necessary, for a considerable portion of the tonsils may be lost without producing any bad effects ; constitutional remedies alone are generally employed. With respect to my own treatment, I am always disposed to assist by local means the healing of the syphilitic sores wherever they occur.

When there is syphilitic disease of the soft palate, nothing can be worn, because any instrument, unless kept near the bone, would excite inflammation.

With respect to venereal affections of the larynx, you must act immediately on the system by the use of our best alteratives. In my own practice, I use the syr. iris versicolor, and iodide potass., because it is the quickest in its operation. I also make use of gargles, etc.

SYPHILIS AFFECTING THE NOSE.

The mucous membrane of the nose is liable to be affected by this disease, as well as the mucous membrane of the mouth. Ulceration in this part very speedily affects the bones, which afterwards exfoliate, and the patient will be in danger of losing a considerable portion of his nose.

Symptoms.—The first circumstance which indicates the existence of this disease is an incrustation forming in the nose, which, on being removed by the hand, gives rise to a discharge of blood mixed with purulent matter.

In two or three days similar incrustations are formed, and under these ulceration takes place, which frequently lays bare the bone, and occasions the process of exfoliation. The bones very often separate by exfoliation, long after the syphilitic action has ceased.

Treatment.—The treatment of syphilis in the nose is similar to the treatment of it in other parts of the body. The constitutional treatment is precisely the same; but, in addition to the constitutional treatment, local applications should be employed.

Fumigating the part is attended with some advantage: injecting lotions is also sometimes found to be beneficial. Lotions of diluted nitric or muriatic acid may be used with a view of healing the sores and assisting the process of exfoliation. Fumigations are useful in clearing away the accumulated incrustations. A wash of:

R—Fld. Ext. Myrica Cér.....	.....	} aa.
“ “ Hydrastis.....	.....
		} ʒ j.

Add one teaspoonful to a pint of water, and use with a douche three times a day. Steaming the nose with hot water assists in separating the incrustations, and affords considerable relief to the patient.

We have now gone through the ordinary treatment of the disease; and if the bones of the nose have not become affected, there will be but little trouble in effecting a cure.

Sometimes you will meet with cases in which very considerable difficulties will be encountered, and in which the most horrible deformities will frequently be the result. In general you are to consider these deformities not of syphilis itself, but of the improper mercurial treatment.

The disease usually occurs in the following manner: A patient undergoes a mercurial treatment, and the sores appear to be cured; but when the mercury

has been left off for a time, and the person has returned to his ordinary employments, he finds the discharge again appearing in the nose, and, as it becomes offensive, applies to a medical man. Under such circumstances, it is frequently supposed that he has undergone a treatment which is insufficient for the cure of syphilis, the disease is not yet sufficiently subdued, and he is put under a second course of mercury, and from this erroneous opinion proceeds the disease in question. The mercury instead of assisting the exfoliation which is going on adds to the inflammation, and produces other and more extensive exfoliations.

To prevent the great deformity which will arise in such cases if an opening be formed through the skin in the upper part of the nose, a probe should be introduced to feel for the loose ossa nasi, which should be removed by a pair of forceps. In these cases the nose will be somewhat altered; there will still be some deformity, but not to that horrible extent which ensues if the skin is allowed to give way in the upper part of the nose. Discutient ointment should be employed to prevent ulceration taking place through the skin.

SYPHILITIC ERUPTIONS.

Syphilitic eruptions are the mildest of the secondary symptoms of the venereal disease, and in general, admit of an easy cure.

Symptoms.—The common character of syphilitic eruptions is that they are of a copper color, rising a little above the surface of the skin, and if they go on to ulceration form thick incrustations. Syphilitic eruptions are attended with very little pain; an itching rather than a painful sensation is felt in the part, which increases a little in the evening.

There is a greater variety in the character of venereal eruptions than in any other symptoms of the complaint; not only in appearance but also in size. In some you will find the eruptions of considerable magnitude, appearing as if a portion of copper skin was laid down upon the surface but unattended with ulceration. In others you will observe deep ulcerations with a ragged edge; in a third there will be scaly eruptions covering large surfaces in various parts of the body.

With respect to the parts in which venereal eruptions most frequently appear in the first instance, they are the head, face and roots of the hair. Incrustations form about the hair of the head and scabs appear on the forehead, breast, the palms of the hands, and sometimes on the soles of the feet.

The palms of the hands are more frequently attacked with venereal eruptions than other parts of the body, because there is more vigor of circulation in these parts; the parts where the circulation is more feeble are less liable to be attacked.

Treatment.—The treatment of venereal eruptions is very simple, you must pursue the same constitutional remedies as in other forms. Venereal eruptions show an irritable disposition, as well as other symptoms of the disease, from which the parts will be in danger of sloughing. The local treatment of erup-

tions will aid considerably in relieving the patient of his troublesome complaint. The best local application is a daily alkaline bath, or a sulphur bath, and in extreme cases a lotion of :

R—Glycerine..... ʒ iv.
Carbolic Acid grs. iv.

Dissolve the acid in glycerine and apply to the affected part with a soft cloth or sponge.

SYPHILITIC DISEASES OF THE PERIOSTEUM AND BONES.

The third effect of the syphilitic poison is on the periosteum and on the bones. It first attacks the periosteum, and the bones become subsequently affected. Those bones which are most external or have least to cover them are more subject to syphilitic disease than deep-seated ones.

Symptoms.—The symptoms which attend are as follows : Some weeks after the chancre has healed, the patient experiences in the evening a sensation of pain in the bone, which afterwards becomes the seat of the node. The pain does not immediately produce a swelling, but in the course of a few days a painful swelling appears in the evening, which disappears again on the following morning and leaves no pain. At this time the periosteum only is affected by inflammation ; in a short time a deposit takes place between it and the surface of the bone ; this deposit is, in the first instance, only a serous fluid, but a cartilaginous substance is soon secreted which is gradually converted into bone, and technically a *node*.

Treatment.—The treatment of this disease is not different from that which is necessary for the other symptoms of syphilis. Give the constitutional treatment, and simply apply discutient ointment, which will certainly assist in getting rid of inflammation. When the inflammation has ceased, if there is any enlargement of the bone, use:

R—Iodide Potass..... ʒ j
Aqua ʒ iv

Rub well in twice a day, and cover with oil silk.

Though the treatment of *nodes*, when attended to early, is very simple, cases sometimes occur in which considerable difficulty arises. You will sometimes find a considerable quantity of serous fluid fluctuating between the periosteum and bone unaccompanied with redness of the skin. When the fluctuation however is accompanied with an appearance of redness in the skin and much pain in the part, indicating the presence of matter, it will be impossible to produce absorption by any means, and the sooner an incision is made down to the bone the better. The exfoliation which will afterwards take place will be proportional to the extent of surface laid bare ; and if you delay making the opening till the extent of surface affected is very considerable you will only be adding to the evil. The flat bones are sometimes the subject of syphilitic action, characterized by the same symptoms as before related. That which is more commonly affected than any other is the *os frontis*.

It sometimes happens when this disease attacks the flat bones, that it is attended with very considerable tumor and fluctuation. No incision should be made under any circumstances. Now and then, indeed, the suppurative process takes place, and a most serious disease is the result. When the skin is inflamed and the matter is formed beneath it, it will be right to discharge it.

It very often happens in venereal affections of the cranium, that matter forms on the surface of the bone, and the suppurative process also takes place between the dura matter and the internal part of the skull. The treatment you are to adopt in these cases is to push the constitutional treatment, and use lotions of the iodide of potassium to bring about absorption. This lotion should be continually applied, and the part covered with oil silk.

We have now gone through the consequences of impure venereal intercourse, and as you have, by this time, a knowledge of the results of syphilis, we will now pass on to some general remarks of the true character of the latter, and give you the best constitutional treatment known in our practice.

GENERAL REMARKS ON SYPHILIS.

Syphilis, as we have before observed, is a disease communicated by a peculiar morbid poison, the symptoms of which are divided into *primary* and *secondary*. Chancre and bubo are the primary symptoms; sore throat, eruptions, disease of the nose, and nodes, the secondary; and secondary symptoms are the consequence of the absorption of the venereal poison into the system, and its circulation through the blood.

The time at which secondary symptoms usually appear is from eight to sixteen weeks; sometimes, however, they are protracted, in consequence of the system laboring or suffering under the irritation of another disease, as diarrhoea, for example.

The venereal poison is commonly in the form of pus or some other secretion. In most cases it excites an inflammation, which is attended with a specific mode of action, different from all other actions attending inflammation, and accounting for the specific quality of the matter.

The formation of matter, though a general, is not a constant attendant on this disease. For inflammation produced by the venereal poison, sometimes does not terminate in suppuration. Venereal poison is very irregular in its effects; and hence, probably, is one cause of a great deal of uncertainty yet prevailing about its distinguishing characters. Two men sometimes have connection with the same woman, both catch the disease, but one may have very severe, the other exceedingly mild, symptoms.

The offspring are often affected by syphilis when *in utero*, and the disease is often present at birth. Within twenty-four hours after their entrance into the world, such children have the palms of their hands, the soles of their feet and the nates, covered with copper-colored eruptions; and the nails at the same time, generally, begin to peel off, and, if care is not taken, the little patient will sink under the effects of the disease. In these cases you give the mother con-

stitutional treatment, the influence of which is communicated to the child, through the medium of the milk, and it becomes cured of the syphilitic disease.

A woman during pregnancy cannot be cured of the venereal disease; you may cause the disappearance of the primary symptoms, but after delivery the secondary effects are very soon manifested in different parts of the body.

To the question, does much inflammation usually attend syphilis? no direct answer can be given, for the degree of inflammation which attends it is proportioned to the health or irritable state of the patient. In a healthy person the venereal disease is slow in its progress, and but little inflammation accompanies it; on the other hand, in the irritable person, it is rapid in its progress, and accompanied by considerable inflammatory action, therefore the differences which characterize the syphilitic disease in various persons do not arise from any peculiarity of the poison itself, but from the peculiar condition of the person on whom it falls.

Whether the matter of a secondary venereal ulcer is infectious or not, I cannot possibly say, but I am of the opinion it is capable of propagating the disease.

The matter of bubo, as far as experiments have gone, is not infectious, and for my own part I think there is but very little difference between the matter of bubo and that of a common abscess.

Some persons imagine gonorrhœa and syphilis to be the same disease, but the experiments which have been instituted to illustrate this point decidedly prove the two diseases widely different in their true character.

To the question, is chancre curable without mercury? I should reply that mercury is not necessary.

Is any other medicine but mercury capable of curing syphilis? This is a question which my own practice enables me to answer in the affirmative, and I strenuously and conscientiously advise you never to give mercury either for primary or secondary symptoms, but trust to other remedies.

The only permanent or successful mode of treating syphilis is that which I shall lay down.

CONSTITUTIONAL AND GENERAL TREATMENT OF SYPHILIS.

As before remarked, there is a period of incubation during which the poison of syphilis lays dormant. I am of the opinion the blood is not contaminated until three to eight days after the chancre appears.

Now, during this period, if the local manifestation is destroyed, and a thorough constitutional course adopted, syphilis can be aborted, and none of its constitutional effects manifest.

In this connection we may recapitulate. Called to treat a case of incipient chancre, that is, within three to seven days from its first appearance, we would apply nitric acid to the pustules and repeat daily for three days. In irritable habits, sometimes, this will produce a swelling of the penis, which you will control with an emollient poultice. The nitric acid will cause a small eschar which,

dropping out, leaves a small ulcer not deeper than the skin ; dress this with ointment of white oxide of zinc, and in a few days it will heal.

Begin at once, and give your patient :

R —Fld. Ext. Iris Versicol	
“ “ Phytolacca	} aa.
“ “ Corydalis	
“ “ Cimicifuga	
“ “ Sanguinaria	
“ “ Podophyllum	
“ “ Prinos	} ss.
Alcohol	
Syrup Simplex	ss ij.
	ss x.

Dose, one to two teaspoonsful three times a day, half an hour before meals. Half an hour after meals we would give :

R —Fld. Ext Cinchona	ss j.
Nitro Muriatic Acid	ss ss.
Syrup Simplex	ss vii.

Dose, one teaspoonful in half a wine-glass of water, or we would give :

R —Syr. Stillingia Comp.	ss iv.
Iodide Potass.	ss ij.

Dose, one teaspoonful three times a day, before meals. Half an hour after meals :

R —Sulphite Magnesia.	ss ij.
Aqua.	ss viii.

Dissolve, dose, one teaspoonful in a wine-glass of water, or :

R —Syrup Stillingia Comp.	ss iv.
Fld. Ext. Iris Versicol	ss ss.

Dose, one teaspoonful before each meal. After meals, the syr. hypophosphite comp.

In the above prescriptions we have all that is necessary to cure syphilis, where the case is recent. This treatment should be kept up from one to three months to make sure there are no constitutional effects.

Where the disease has become constitutional, then this treatment, to prove effectual, must be continued from three to twelve months. The patient should have the best food his circumstances will afford, eggs, milk, rare beef steak (broiled), cream, fresh fish, avoid all swine flesh or lard, for this but adds to the poison ; allow no alcoholic liquors, wine or beer ; warm clothing, woolen next the skin ; daily bathing, with sulphur bath once a week ; exercise in the air, well ventilated sleeping rooms ; in a word, everything calculated to build up the general health and make good blood. It is a good plan to alternate—give one remedy a week or two, and then substitute another, keeping in view the two indications—alteratives to act on the glandular system, and eliminate the poison, and tonics to build up. No line of treatment calculated to run down the system will do in syphilis.

The iris versicolor is a better alterative than mercury, and is free from any after effects.

When the throat is much involved, we may substitute for one of the alteratives :

R—Fld. Ext. Phytolacca.....	}	aa.
“ “ Iris Versicol		—
“ “ Zanthoxylum.....		3 ss.
“ “ Cimicifuga.....		—
Iodide Potass.....		grs xxx.

Dose.—Twenty to thirty drops once in four hours in sugar and water. Touch the ulcers occasionally with nitric acid, and use a gargle of myrica and hydrastis, keeping up the alteratives and tonics. Baths may be varied—alkaline baths one week, nitro-muriatic the next.

For affections of the bone, nodes, etc., keep up the constitutional treatment, and the local application of iodide of potassium as directed under the proper head. Sulphur baths will be found good in this connection.

Infantile syphilis is sometimes hereditary, sometimes acquired from a syphilitic nurse. If inherited, the child may be born apparently healthy, with its skin a dull color, but the features are always contracted, and it has the appearance of age. Within a month of birth we have a weeping from the eyes, dry mouth and tongue, difficulty of hearing, shrill voice, ulceration of mouth and throat. The skin around the mouth, nostrils, etc., become copper-colored, fissured, ulcerated, vesicles resembling the true pox make their appearance and produce sores, deep-seated and copper-colored. We then have general emaciation, weakness, and may be disease of liver, lungs, or some internal organ will put an end to its sufferings.

Treatment must be through the milk of the nurse and baths with mild local dressing, zinc ointment, etc. In all syphilitic sores ointments for the most part irritate, and do more harm than good.

Every true physician should be a missionary, and do all in his power to prevent the spread of this dire disease, compared with which small-pox is as a mole hill to a mountain.

DROPSY.

Dropsical effusion is not, properly speaking, a disease, but only an effect of disease. The morbid condition upon which the dropsical effusions depend is either inflammation or a state of the exhalents closely allied to inflammation. In every case of dropsy there are two simultaneous morbid conditions present, namely : increased exhalation and diminished absorption, and that although irritation and congestion of the exhalents are generally indispensable conditions to this morbid action, yet that effusion may result in certain cases simply from an alteration in the character of the blood by endosmosis. In some instances the urine contains more or less serum ; in others, it is entirely destitute of it. If the urine coagulates with heat and nitric acid, Bright's disease of the kidneys may be suspected. It is in the subacute and idiopathic forms of dropsy that

the urine is loaded with the greatest quantity of serum. In dropsy from scarlatina there is generally a large quantity of serum in the urine. In local dropsies, not attended with general excitement, the urine is seldom charged with any serum. When the heart sympathizes with the local or general morbid action of the exhalents, febrile symptoms attend. When the morbid excitement of the exhalents does not extend to the heart, the general circulation is languid, and debility and relaxation characterize the disease. The general indications in the treatment of dropsy are:

1. To procure absorption and elimination of the effused fluid.
2. To correct the morbid action of the serous exhalents from which the effusion takes place. Dropsy is divided into three principal varieties, viz: Anasarca, ascites, and hydrothorax.

ANASARCA.

In this variety the effusion takes place into the cellular tissue. It may be either local or general.

Symptoms.—A part that is anasarcaous pits on pressure. It almost always begins in the feet or legs, the swelling diminishing during the night and increasing towards evening. The urine in this, as in other varieties of dropsy, is always scanty and high-colored; the countenance is sallow, the general system sluggish, and there is usually much sleepiness.

Anasarca is frequently connected with effusion in the abdomen and chest.

Causes.—Local anasarca may be produced by whatever impedes the return of blood from a part—as indurated glands pressing on large veins, ligatures, etc. It arises also from mere general debility, diseases of the heart, phthisis, etc. General anasarca may result from hemorrhages, diarrhœa, diabetis, and other circumstances that rapidly exhaust the system. The blood being drained of the red principle, the watery portion in excess, and the absorbents being inactive a greater amount of fluid is retained in the system, and thus gives rise to this condition.

Sudden suppression of perspiration, particularly after scarlatina, measles, or while under the influence of mercury, a frequent cause of general anasarca. Dropsy from this cause always phlogistic. General anasarca may also result from the internal use of arsenic, from torpor of the kidneys, from amenorrhœa, general plethora with a relaxed habit, chronic diseases, *intestinal irritation*, etc. Too much blood, or a condition of plethora, will produce dropsy from the fact that the absorbents are rendered torpid from a congested condition or fulness of blood. We thus find two opposite conditions leading to the same result—anæmia on the one hand, plethora on the other, resulting in dropsical effusion.

Proximate Cause.—A sub-inflammatory action of the exhalents of the cellular tissue, attended with increase exhalation, and diminished venous absorption. It appears to me probable that congestion in the venous capillaries performs an important part in the production of dropsical effusion.

ASCITES.

Visceral obstruction is a common cause of dropsy. Ascites may be a sequel of peritoneal inflammation in which there is always a preternatural effusion of serum. If the constitution is vigorous, the absorbents continue to remove the exhalation as fast as formed, but in the feeble, delicate, or scrofulous subject the function of absorption often languishes, the equilibrium between the exhaling and absorbing function is destroyed and ascites is the result.

Symptoms.—The first symptoms which a person feels who is affected with ascites, is pain on the abdomen being pressed; every day this symptom becomes more and more severe, the body goes on enlarging until at length the person applies for medical assistance. Upon examination, it will be found that the intestines are floating in a fluid, the abdomen enlarged (in proportion of course to the quantity of fluid within), and upon loosening the clothes, applying the hand to each side of the body, and gently using pressure with one hand, and slightly tapping the abdomen with the other, or giving the body a gentle jerk from side to side, fluctuation will be readily perceived. As the disease advances dyspnœa comes on from pressure produced on the diaphragm, which at length becomes a very troublesome symptom.

Causes.—The most common cause is disease of the liver; it is also the result of local irritation from enlargement of the abdominal viscera; it likewise proceeds from debility arising from fever, and from debilitating courses of mercury, the use of ardent spirits, etc. Diseases of the liver, by impeding the circulation of the blood through that organ by obstructing its free passage, must of necessity occasion a congestion of blood in the vessels of the mesentery, stomach, spleen, pancreas, and neighboring part, and for the relief of this congestion, nature is under the necessity of effusing from the filled vessels the serum which we subsequently find in the peritoneum.

Proximate Cause.—A morbid action of the peritoneum, attended with capillary congestion and diminished venous absorption.

Diagnosis.—The difficulty of breathing, and the increase or quickness of pulse on taking exercise, the inconvenience arising from the slightest pressure by the clothes, and the gradual enlargement of the abdomen, so strongly point out the character of the disease, it is hardly possible you can form an incorrect opinion respecting it. The fluid secreted in ascites is serous, but does not contain so much albumen as serum in general.

HYDROTHORAX.

Difficulty of breathing, paleness of countenance, œdematous swelling of the feet, difficulty in lying down, sudden and spontaneous waking out of sleep, with palpitation, fluctuation of water in the breast.

The collection of serous fluid in the chest by which hydrothorax is constituted may be either in the cavity of the pleura, or in the cavity of the pericardium,

or in the cellular substance of the lungs, and thus severally forming the hydrops thoracis, the hydrops pericardii, and the hydrops pulmonum of authors, very frequently, however, these disorders are all co-existent.

Symptoms.—The symptoms are well marked in the definition, there is, however, for the most part a paucity and paleness of urine; a great irregularity, amounting often to intermission of the pulse, a numbness of one or other arms, or of both arms when the collection of fluid is in both cavities of the thorax. Sometimes the patient finds the difficulty of breathing upon lying down come upon him immediately upon his attempting the recumbent position; at other times the occurrence of the dyspnœa is more gradual, and in this last case it may be inferred that the effusion is rather into the cellular membrane than the pleural cavity. In other cases the palpitation of the heart is more than ordinarily urgent, and the radial pulsations more than usually intermittent; and then we have to suspect that the pericardial cavity is the main seat of the disorder.

Causes.—Whatever produces inflammation or congestion of the pulmonary vessels is likely to be eventually productive of hydrothorax. Hydrothorax is very often symptomatic of cardiac, of pulmonary, of hepatic, and, indeed, other visceral disease, and it is brought on by the interruptions to pulmonary regularity of function, to which these visceral disorders give rise.

Diagnosis.—From asthma, or mere dyspnœa, hydrothorax is distinguishable by its more permanent characters, and by the accompanying dropsical affections and tendencies. It is not often, however, that fluctuation can be perceived in the way mentioned in the definition. When that is the case, the collected fluid is generally purulent, and constitutes the disorder known as systemic emphysema.

Prognosis.—Unfavorable, especially when much organic disease accompanies the complaint, or when it has been induced in a chronic, insidious manner. The young practitioner should recollect that death in hydrothorax is often instantaneous, and prognosticate accordingly.

Treatment.—In all forms of dropsy the first indications of a cure is to remove, as far as possible, the cause upon which the dropsical effusion depends. Preliminary to treatment we want pure air, perfect hygiene, moderate exercise and an agreeable state of mind, nutritious diet, warm clothing, frequent dry friction with warm cloths, etc.

If dropsy is due to some incurable affection of the heart, liver or kidneys, we can palliate and prolong life, if we can not cure.

To do this we must have him avoid all causes that tend to aggravate the primary source of the disease—physical exertion, violent passion, emotion, etc., are to be avoided. We must endeavor to change the conditions upon which the morbid derangement depends. To do this we must improve the quality of the blood, raise it to a high standard, and promote the absorption of effused fluid. Our treatment will depend upon the condition of the patient. Our first effort must be to get up an active condition of the skin, kidneys, liver and bowels. If the skin is deficient in action apply the following with sponge night and morning :

R —Bi-Carbonate Soda.....	lb. j.
Tr. Capsicum.....	ʒ iv.
Warm Water.....	Cong. iii.

Then follow with:

R —Podophyllin.....	grs. x.
Bitartrate Potass.....	ʒ ij.

Make ten powders and give one morning and night.

Where we have coated tongue and irritable stomach, an occasional emetic will be found effectual in relieving this condition, and should be resorted to. Diuretics may be resorted to after we get the skin and bowels regulated, and will be found useful in every form of dropsy. Among our best agents of this class is eupatorium pur. uva ursi, chimaphilla, sambucus can. A good diuretic combination is:

R —Fld. Ext. Eupatorium Pur.....	} aa.
“ “ Erigeron Canaden.....	
“ “ Aralia Hisp.....	
“ “ Scoparius.....	

Dose.—Thirty drops once in four hours until kidneys act freely, then two or three times a day to keep up active secretion.

Diaphoretics act well, and may be resorted to when the skin is inactive:

R —Fld. Ext. Asclepias.....	} aa.
“ “ Eupatorium per.....	
“ “ Aletris Far.....	
“ “ Asorium Can.....	

Dose.—Twenty drops once in four hours.

The following formula is both an active diuretic and somewhat cathartic, and acts well in dropsy, especially anasarca, ascites, and will give relief in hydrothorax:

R —Soft Ext. Apocynum, Cannab.....	gr. xx.
“ “ Eupatorium Pur.....	gr. x.
Pul. Squills.....	gr. xxx.

Make into six grain pills, and give one every night, follow with a full dose of epsom salts after third dose. This will carry off the water in nearly every case of dropsy. The after treatment consists in building up the patient with tonics and stimulants, a good nutritious diet, and attention to the secretions generally.

An excellent tonic is the syr. hypophosphite comp., and it should be given in all cases after the effusion is removed.

Tinct. chloride of iron, nitro muriatic acid, cinchona comp. will be found useful at times.

In hydrothorax cathartics are not so valuable as in ascites or anasarca. We must depend mainly on diuretics and diaphoretics, with due attention to the exciting cause.

To recapitulate: In dropsy we want to get up diaphoresis, diuresis, an active condition of the bowels to eliminate the effused fluid, then to act on the absorbent and capillary, so as to prevent a recurrence of the effusion.

DISEASES OF THE GENERATIVE AND URINARY SYSTEM.

NEPHRITIS.

Pain in the region of the kidney often following the track of the ureter, frequent discharge of urine, either pale or exceedingly red; vomiting; numbness of the thigh; and retraction or pain in the testicle of the side affected.

Symptoms.—In addition to the signs mentioned in the definition, it may be stated that the bowels are often constipated, the patient lies with most ease on the side that is affected; and although vomiting is not constant, nausea is a characteristic sign of nephritic ailment.

Causes.—Calculary concretions, violent exercise as of riding, blows on the loins, fæcal collections in the large intestines; acrid diuretics, such as turpentine and cantharides; metastasis, especially of gout, exposure to colds and heats.

Diagnosis.—From lumbago, by the more fixed and less extended locality of the pain, discovered by pressure, by the retraction of the testicle; by the alteration in the quantity and quality of the urine; by the direction of the pain towards the groin and down the thigh, and by the presence of sickness. From enteritis by the seat likewise of the pain; by its not being attended with the obstinate constipation of enteritis, and by the pulse not being so rapid or oppressed as in the latter disease.

From gastritis, by the sickness or nausea not being accompanied with the burning sensation characteristic of true gastritis. From gall-stones or spasm in the gall-ducts, by the seat of the pain, the absence of yellowness in the skin, and by the urinary changes.

Prognosis.—In general favorable, the signs of approaching resolution or tendency to suppuration, are nearly the same as in other inflammations. It may be remarked that a purulent formation and discharge of pus by urine may be the consequence of nephritis, and last even for years without very much affecting the general health. This has been accounted for by the kidneys being an organ not of supply but of waste. Nephritis sometimes ends in a destruction of the kidney's substance, but seldom in positive gangrene.

Treatment.—In nephritis we must have our patient rest in bed and give an alcoholic vapor bath, a mild purgative, as:

R—Podophyllin gr. j.
Bitartrate Potass. 9 j.

Dissolve in a tumbler of water and give at a dose. Emollient fomentations and anodyne enemata are often necessary and useful in nephritis:

R—Magnesia Sulph. 5 ss.
Oleum Ricini 5 j.
Fld Ext. Papaver 3 ij.
Boiling Water 5 x.

Use warm as an injection up the rectum.

Apply warm fomentations of hops or poppy heads and salt. Give freely of slippery elm water, barley water or a decoction of marsh mallow. If the pain is great and the fever high, give :

R—Fld. Ext. Asclepias	ss.
“ “ Eupatorium Purp	
“ “ Eupatorium Perfolia	3 ss.

Dose.—Thirty drops once in three hours. When the inflammation is about terminating give :

R—Fld. Ext. Uva Ursi	aa.
“ “ Chimpahilla	
“ “ Sambucus	3 ss.
“ Buchu	

Dose.—Forty drops in water, three or four times a day ; warm salt water baths, and establish convalescence with tonics and mild stimulants, keeping up the astringent diuretic, a good, nutritious diet, warm clothing, and perfect rest is essential to a speedy cure.

ALBUMINURIA.

Under this head I shall describe a class of disease of the kidneys usually termed Bright's disease. While I am willing to give to Dr. Bright due credit for calling attention to this condition of the kidneys, I cannot see the propriety of designating a disease, or a condition of disease, by the name of any individual, especially when one of the leading characteristics of the derangement is so expressive as in this.

It is applied to a class of diseases of the kidneys which have as their most prominent symptom the presence of albumen in the urine, hence we prefer the term albuminuria to that of Bright's disease.

As before remarked, it is a term in medicine applied to a class which have as their most prominent symptom the presence of albumen in the urine, and frequently also the co-existence of dropsy. These associated symptoms in connection with kidney disease, were first described in 1827, by Dr. Richard Bright. Since that period the subject has been investigated by many able physicians, and it is now well established that the symptoms above named, instead of being, as was formerly supposed, the result of one form of disease of the kidneys, may be dependent on various morbid conditions of those organs. Hence the term Bright's disease, which is retained in medical nomenclature in honor of Dr. Bright, must be understood as having a generic application.

Two varieties of Bright's disease are described—the *acute* and the *chronic*—the former representing the inflammatory, and the latter the degenerative form of kidney disease.

Acute albuminuria commonly arises from exposure to cold, from intemperance, or as a complication of certain acute diseases—such as erysipelas, diphtheria, and especially scarlet fever, of which it is one of the most frequent and serious consequences. In this form of the disease the kidneys become con-

gested, their blood vessels being engorged with blood, while the tubules are distended and obstructed by accumulated epithelium, as also by effused blood and the products of inflammation, all of which are shed off and appear in the urine on microscopic examination as *casts* of the uriniferous tubes.

Symptoms.—The symptoms to which the condition gives rise are usually of a severe character. Pain in the back, vomiting, and febrile disturbance commonly usher in the attack. Dropsy, varying in degree from slight puffiness of the face to an accumulation of fluid sufficient to distend the whole body, and to occasion serious embarrassment to respiration, is a very common accompaniment. The urine is reduced in quantity, is of a dark, smoky, or bloody color, and exhibits to chemical reaction the presence of a large amount of albumen, while under the microscope blood corpuscles and casts, as above mentioned, are found in abundance. This state of acute inflammation may by its severity destroy life, or, short of this, may by continuance result in the establishment of one of the chronic forms of Bright's disease. On the other hand an arrest of the inflammatory action frequently occurs, and this is marked by the increased amount of urine and the gradual disappearance of its albumen and other abnormal constituents; as also by the subsidence of the dropsy and the rapid recovery of strength.

Of *chronic* albuminuria there are several forms named according to the structural changes undergone by the kidneys. The most frequent of these is the *large white kidney*, which is the chronic form of the disquamative nephritis above mentioned. Another form of chronic albuminuria is the *waxy*, or *amyloid kidney*, due to the degenerative change which affects first the blood-vessels and subsequently also the tubular structures of the organ. This condition is usually found associated with some chronic ailment of an exhausting character, such as disease of bones and other scrofulous affections, or with a generally enfeebled state of health.

Symptoms.—Dropsy, and a peculiarly cachectic, emaciated look, constitute its prominent symptoms, and the urine, as the disease slowly progresses, becomes more and more suppressed, death taking place by coma-uraimic intoxication. The sediment is usually small, and presents pale casts of the tubes, with a few epithelial cells, usually colorless and transparent. Not unfrequently, at an early period, disquamative casts, fibrin cells, etc.

Post-mortem.—On examining the kidneys, which have undergone waxy degeneration, we find that they are more dense to the feel than natural; sometimes smaller, sometimes larger, of a color resembling various shades of dirty bees-wax, or a light fawn tint. The nature of waxy degeneration is evidently some change in the chemical composition of the structure affected.

A *third* form of chronic albuminuria is the *contracted kidney*, depending on the condition known as *cirrhosis*, in which the kidneys become reduced in bulk, but dense in texture, from an abnormal development of their connective tissue and relative atrophy of their true structure. This form of the disease, which is commonly, though not exclusively, connected with a gouty constitution, is apt to escape detection in its earlier stages from the more obscure character of the symptoms, there being less albuminuria and less dropsy than in the other varieties. Its late progress however, enables it to be readily recognized.

Symptoms.—Dimness of vision, due to a morbid condition of the retina, and also hypertrophy of the heart, leading to fatal apoplexy, are frequent accompaniments of this form of the disease.

Post-mortem.—The kidneys present all the characteristics of cirrhous infiltration, hard, and the tubes are obliterated, and the whole appearance of the glands is that of atrophy or diminished size.

A fourth variety of chronic albuminuria is described by authors on the subject, *viz.*, *fatty degeneration of the kidneys*, occasionally occurring in old age and in connection with a similar degeneration of other organs. It is very prevalent among the intemperate. It is frequently associated with fatty degeneration of the heart and liver.

Symptoms.—Dropsy, with persistent albuminuria, are constant symptoms, and the sediment is loaded with casts of the tubes of the kidneys containing oil granules and granule cells.

Post mortem.—On examining the kidneys of individuals who have died of this form of disease, we observe the tubes more or less obstructed by fatty granules, which have gradually accumulated in the epithelial cells of the tubes. These separate, and even burst, liberating the contents, and in this way obstruct the tubes, compress the secreting and surrounding textures. Gradually the blood vessels are so compressed that the organ itself looks bloodless and of a light fawn or dirty color. The fibrous texture is occasionally hypertrophied, causing contractions round the tube, thus causing irregularities on the surface.

Occasionally, fatty granules scattered over the cortical substance, accumulations of fat, etc., consequent pressure and obstruction, rendering them incompatible to the performance of their function.

The kidneys being among the most important excretory organs of the body, it follows that when their function is interrupted, as it is alike in acute and chronic albuminuria, serious results are apt to arise from the retention in the economy of those effete matters which it is the office of the kidneys to eliminate. The blood being thus contaminated, and at the same time impoverished by the draining away of its albumen from the kidneys, is rendered unfit to carry on the processes of healthy nutrition; and as a consequence various secondary diseases are liable to be induced.

Inflammatory affections within the chest are of frequent occurrence, but the most dangerous of all complications of albuminuria are the nervous symptoms which may arise at any stage, and which are ascribed to the effects of uræmic poisoning.

Causes.—The direct cause of albuminuria is the passage through the kidneys of effete excrementitious matter, drained from the blood. A common cause is poisonous drugs, alcoholic liquors, malt liquors, ice water, and iced drinks generally.

The poison of the eruptive fevers, drastic diuretics and irritants of various kinds which, long continued, excite inflammation, and will lead to, or bring about, degeneration.

Even a mild inflammation of the kidneys leave the renal tissues thickened and obstructed by effused lymph.

True, it may remain dormant even for years, until some exciting element gives rise to active renal degeneration, and the kind of degeneration will be determined by the exciting cause and the peculiarities of the patient.

Some habits favor development of granulation, some fatty, others cirrhosis, etc., rarely met with in old age, more frequently in the young and middle aged and more common to men than women. An out-door life, exposure to cold and wet, favor its development. Those inhabiting humid and marshy districts are more liable to it than those occupying high and dry situations.

The symptoms of each peculiar form is given, and the definition. The characteristic symptoms in all is the presence of albumen in the urine.

Languor, lassitude, debility, large fleshy tongue, longitudinal fissures, weakness in the loins, a puffing under the eyes, swelling of hands and feet, are characteristic of all forms of the disease, but, as before remarked, the only positive evidence is the albumen in the urine.

Diagnosis.—Invariably depends upon three kinds of observation—or on the symptoms and on the chemical and microscopical examination of the urine. The symptoms at first are nearly allied to those of inflammation of the kidney followed with dropsy; but these symptoms are vague until we test the urine, and if there is a persistency of albumen in the urine, and if it be of low, specific gravity, and it contains the peculiar exudative disquamative, fatty and waxy casts seen under the microscope, we are warranted in pronouncing the case one of albuminuria.

It must be remembered, however, that albumen is likewise found in the urine in the case of all essential fevers of pneumonia, diphtheria, erysipelas, etc., but the amount is generally smaller than in albuminuria, and always more transient. Occasionally, however, albumen is absent in this affection; here the renal casts will constitute the characteristic symptoms. When not otherwise to be accounted for this affection should always be suspected in all cases of coma, convulsions, vertigo, and other forms of cerebral disorder, as well as in inflammation of serous membranes; in such cases examine the urine for all albumen or casts.

The progress of the disease will the more readily be ascertained by carefully observing the size of the waxy casts—they increase in diameter as the disease progresses, owing to the tubes becoming denuded of their epithelial lining.

The larger casts, which have the full diameter of the uriniferous tubes with a remarkably sharp outline, having been formed in tubes which have lost their epithelial lining, and with it their proper secretory function.

Accordingly these large casts indicate a more serious degeneration of the tubular structure than the small ones. The large and small ones are often combined in the urine of the same patient, but a considerable portion of the former—or full-sized wax-like casts in the urinary sediment is a serious omen, being indicative of an advanced stage of the disease.

Prognosis.—In the first stage favorable under judicious treatment, in the later stages, more unfavorable. It is highly unfavorable in all cases where there is scanty urine and of very low specific gravity; an extremely impoverished condition of the blood corpuscles, and stupor verging on coma.

Treatment.—As this is essentially a condition of depletion, the indications are plain. We must assist the natural efforts to overcome the morbid condition; we must build up the system. Cold being a devitalizing agent, we must guard against it, it is the chief cause of renal disease. It is best, if the weather is cold, for the patient to remain in bed, both for rest and to insure against cold. He should have flannel next to the skin and be warmly clad, and as far as possible, rest in the horizontal position. All alcoholic stimulants must be dispensed with, malt liquors, &c and ice-water are to be prohibited.

The greatest attention should be paid to diet. Unless we have proper diet and exclude that which tends to aggravate the trouble, our treatment will fail. The diet must be the most nutritious possible, avoiding that which contains fat or acids or is likely to produce acidity. We should give the preference to animal food, always remembering to exclude fat; give eggs, milk, fish, oysters, rare steak, mutton chops; avoid all swine flesh, lard, or articles cooked in lard. Keep the apartment free from draught but well ventilated, your patient as cheerful and hopeful as possible. Frequent warm baths with dry friction over the region of the kidneys and spinal column. There are two classes of remedies indicated—diaphoretics and diuretics.

The intimate connection of the skin and kidneys as excretory organs are well known. In health the sudden suppression or interruption of the function of the skin is compensated for by the increased action of the kidneys, and so in acute derangement of the kidneys the skin often takes the place and performs the functions of the kidneys; the value of these two classes of remedies is apparent. In all renal affections we must excite the skin to action, and, in this way give the kidneys partial rest to aid the process of repair.

The diaphoretic powders, comp. tinct. serpentaria, hot air baths, etc., will be found indispensable in the treatment of albuminuria.

R—Fld. Ext. <i>Serpentaria</i>	} aa.
“ “ <i>Asclepias</i>	
“ “ <i>Eupatorium Perfo</i>	
“ “ <i>Melissa</i>	
	§ ss.

Dose.—Twenty to thirty drops once in three hours, or often enough to keep up a free action of skin.

Dropsy being induced by an obstruction in the secretory tubes of the kidneys, we resort to diuretics to gently stimulate kidneys to throw off the obstruction. This obstruction being a result of inflammation, we give preference to stimulating diuretics. Among this class the very best are eupatorium purp. buchu, bitartrate of potass, etc.:

R—Fld. Ext <i>Buchu</i>	} aa.
“ “ <i>Eupatorium Purp</i>	
“ “ <i>Perrieræ Bravæa</i>	
“ <i>Erigeron Canad.</i>	
	§ ss.

Dose.—Thirty drops three or four times a day, until free action of the kidneys, then only often enough to keep them acting. As a general tonic, iron and phosphorus. A good combination is :

R—Phosphoric Acid Dil	§ j.
Tr. Cinch. Comp	§ iv.
Glycerine	§ iii.

Dose.—One teaspoonful three times a day. If we have symptoms of uræmic poisoning resort to citric or gallic acid, and use a bath of vinegar and water, say :

℞—Apple Vinegar..... Cong. j.
Alum Water..... Coi g. v.

Sponge the body twice a day and give a cathartic of :

℞—Podophyllin..... grs. ij.
Bitartrate Potass..... ʒ j.

Divide into four powders and give one every three hours until a free catharsis is obtained ; this will materially aid in throwing off the poison. Cathartics of this class may be repeated once a week while we have any evidence of blood poisoning. When we have the chronic form with no urgent symptoms to combat, a good treatment will be :

℞—Gallic Acid..... grs. xv.
Port Wine..... ʒ ij.

Three times a day before meals. We may alternate this with nitro-muriatic acid, as :

℞—Nitro-Muriatic Acid..... ʒ j.
Tr. Cinchona Comp..... aa.
“ Gentian..... ʒ j.
Syrup Simplex..... ʒ iv.

Mix.—Give one teaspoonful half hour after meals ; at night we would give :

℞—Fld. Ext Cypripedium..... ʒ j.
“ Papaver..... ʒ ss.

Dose.—Forty drops just before retiring.

Among other valuable diuretics we shall find the uva ursi excellent—thirty drops of the fluid extract occasionally, it is both astringent and diuretic, and acts well in promoting the escape of albumen. Remember in the management of these cases you have a terrible drain upon the system in the albuminous urine. You will find, if treated with depleting agents, a tendency to arrest of function and uræmic poisoning as a result. This can always be prevented under our system of treatment, which is essentially, all the way through, a building up, but just in proportion as we build up and increase the vital powers, shall we be able to keep the disease in abeyance, even though incurable.

Give the kidneys partial rest by carefully maintaining an active skin. Do not allow arrest of function of kidneys, and husband the strength of your patient, adding thereto by such diet as will make good blood and that without producing acidity, etc.

RENAL DEGENERATION.

We have three varieties of degeneration—fatty, amyloid, or waxy, and cystic.

First, and most frequent, is *fatty* degeneration.

Cause.—It may result from inflammation, a scrofulous diathesis, exposure to wet and cold, irregular living, and, more often than anything else, intemperance. We seldom meet with it, except in those given to the use of alcoholic liquors.

Symptoms.—General debility which means, with this disease, a peculiar

palor and rapid pulse always present. We usually have swelling of the face, and sometimes other parts; stomach weak and irritated, nausea and vomiting; a tendency to pericarditis. In fact, as this disease advances, we have a tendency to a variety of diseases of a low, or wasting type, and we sometimes have uric acid diathesis, or poisoning from urea, producing convulsions, coma and death. The urine is scanty, loaded with albumen, and soon there is an oily crust or globules appearing on the surface.

AMYLOID DEGENERATION.

Frequently associated with scrofulous disease of bone, or syphilis. It impairs the secretions of the kidneys at once.

Symptoms.—Gradual loss of strength, profuse and unnatural secretion of urine, excessive in quantity, and swelling of legs and feet, we shall find the liver and spleen enlarged, urine pale and of albuminous tendency.

Reaction and progress slow, and is usually associated with impoverished blood, and the quantity of the urine diminishes as the albumen increases.

Death usually results from some complication, as pericarditis or pleurisy, phthisis, or some other symptom of low, nervous vitality.

CYSTIC DEGENERATION.

Of this variety there are four forms: First, small superficial scattered cyst, which do not impede the functions of the glands. Second, cyst from the size of a pinpoint to that of a chestnut—these are produced by an obstruction of the tubes, etc. Third, congenital degeneration or cystic growth. In this we have the new-born infant with large, irregular shaped kidneys, made up of cystic growth, and destitute of secreting tissues. Fourth, general degeneration from dilation of a portion of the tubes. One or both kidneys may be involved. These cysts contain a dark, limpid fluid, and sometimes assume a thick or solid condition.

The symptoms of cystic degeneration are not well marked, and come on gradually; there are always pains about the loins, bloody urine, and excess of albumen.

Death may result from excess of urea in the blood, or some other complication.

Treatment.—All the forms of renal degeneration require a treatment to build up the general health; to this end we would give the syrup hypophosphites before each meal, the nitro-muriatic acid after meals. A good nutrititious diet, salt water bathing, general treatment similar to that under head of albuminuria.

HÆMATURIA.

Hemorrhage from the mucous membrane of the urinary organs, kidneys and bladder and urethra is generally caused by the passage of calculi, morbid blood poisoning, or local diseases of the urethra or bladder.

Symptoms.—Pain, or sense of weight, in the loins, or on the pubic region,

with occasionally a difficulty, especially in the first efforts, to discharge the urine.

Causes.—Calculus and other foreign bodies in the kidneys or bladder will give rise to the disease; but sometimes the discharge seems to be a sort of plethoric manifestation, the urinary organs being made use of, as it were, by nature to convey away redundant blood. It sometimes follows violent blows or strains, and is occasionally the result of common inflammation in these very vascular parts.

Diagnosis.—The very high colored urine, occasioned by an admixture of bile, or other disordered states of the kidneys or general system, does not stain linen of a red color, as in the case of hæmaturia; nor, in the former instances, is a red coagulum thrown down to the bottom of the vessel.

Prognosis.—When the affection is unaccompanied by any indication of organic disorder, in the parts from which the discharge proceeds, the prognosis may be considered favorable. But these discharges are seldom idiopathic, and the degree of danger must be inferred from the degree of the producing derangement.

Treatment.—This will depend, in a great measure, upon the cause.

In many cases it will be safe to give a saline purgative, seidlitz powder, epsom salts, or citrate of magnesia—something to act free without griping. Then follow with:

R—Fld. Ext. Papaver.....	aa.
“ “ Erigeron Can.....	§ j.
Syrup Simplex.....	§ iv.

Dose. . One teaspoonful every three hours. Between the dose of above give :

R—Fld. Ext. Uva Ursi.....	aa.
“ “ Geranium Mac.....	§ ss.

Dose.—Thirty drops in an infusion of peach leaves, marsh mallow comfrey, or flax seed. The mucilaginous infusion will be found indispensable where the hemorrhage proceeds from calculus.

The tinct. ferri muriate is very good, and may be given in place of one of the above prescriptions, fifteen to thirty drops once in three hours. When the hemorrhage is persistent, put the patient on a regular course of treatment for a month or more :

R—Tr. Cinchona Comp.....	§ viii.
Nitro-Muriatic Acid	§ j.
Syrup Simplex.....	§ vii.

Dose.—One teaspoonful before each meal,

R—Fld. Ext. Geranium Mac.....	aa.
“ “ Nymphia Odor.....	§ ii.

Dose.—Thirty drops after meals.

R—Oil Erigeron ..	gtts. xx.
Syr. Papaver	§ ss.

Give at bed time. Salt water baths, a good stimulating diet, avoid alcoholic stimulants, etc.

URINARY CALCULI.

These are found in four different situations in the urinary organs, viz., in the kidney, ureter, bladder and urethra. The calculi which are discovered in the prostrate gland, are not, in general, of the same kind as those met with in the organs just named.

CALCULI IN THE KIDNEY.

When a calculus is situated in the kidney, there will be felt considerable pain in the loins, in the vicinity of this organ, and occasionally it will be so very acute, and the part so exquisitely tender that the afflicted person can not allow even the slightest pressure over the loins. The urine, bladder, and sometimes the stomach, also, afford characteristic marks of their presence.

Symptoms.—When a calculus is situated in the kidney it is often accompanied by a numbness of the intestinal tube leading from the kidney to the navel.

There will likewise be felt great pain in the act of stooping, with frequent inclination to make water. The urine is frequently of a dark color, from being mixed with blood; when this appearance is present, coupled with excruciating pain about the loins, it will generally happen that the stone is then in the act of descending, and in a few days afterwards you will probably find that it has entered the bladder. There is also frequent vomiting, and excessive irritability of the bladder.

Renal concretions vary considerably in their number, size and shape. Calculous concretions of large size very often exist in the kidneys, without their presence being indicated by any external circumstances, or attended with any symptoms sufficiently unequivocal to constitute a ground for suspecting the importance of their cause.

On the other hand it is very usual for renal calculi, of middling dimensions, to excite serious and alarming complaints.

The reason of this difference becomes obvious when it is recollected that smallish concretions are readily carried with the urine into the ureter, and become fixed in the narrow portion of the tube. But very large calculi can be contained only in the upper part of this canal, where its particles are more yielding, and the space in them more copious.

In cases of calculi in the kidney, nature generally makes attempts to discharge them through abscesses formed in the loins, unless, indeed, they are small enough to descend through the ureter. Calculi often cause an absorption of the kidney; and when both kidneys are affected at the same period, or if they successively become destroyed, in either case death must ensue.

Treatment.—But little can be accomplished by the medical man in these affections; when the stone, however, is composed of uric acid, the exhibition of potash, magnesia, or soda may be attended with considerable advantage. If composed of phosphate then the nitro-muriatic acid dil. will act well, and should be given in dose of, say, fifteen drops once in four hours.

It is well to give some mucilaginous drink as flax-seed tea, elm, marsh mallow, etc.

These medicines will not dissolve a stone when once formed, but I am inclined to believe that they prevent the further deposition of uric acid, and most decidedly lessen the irritability of the urinary organs; and by covering the surface of the calculus with a sort of mortar, it becomes much less annoying to the patient and much less irritating to the part in which it is contained.

If the calculus is too large to be passed into the bladder you will be able very readily to feel it by a probe through the openings formed by ulceration for its escape, and, in order to prevent the closure of the sinus, by granulation, you should introduce a sponge tent. With a view of facilitating the escape of the stone, you may dilate the sinus by means of a bistoury; for there will be no danger in doing it, as the emulgent artery and vein are situated behind the calculus.

CALCULI IN THE URETER.

When the stone has descended from the kidney into the ureter, there will be felt great pain at different parts, according to the sympathy existing between those parts and the course of the ureter.

Symptoms.—At first there will be great pain at the spine of the ilium, at the anterior superior spinous process, in the course of the psoas muscle, and over the surface of the abdomen; as it passes along the ureter, at the time it crosses the lumbar plexus, there will be experienced very great uneasiness in the groins and in the course of the anterior crural nerve down the thigh; when it goes over the spermatic plexus, the cremaster will be spasmodically contracted, and there will be felt severe pain in the testicle; the stomach will likewise be particularly irritable and continually eject its contents; the skin covered with cold sweats, and a death-like paleness of the countenance.

The pain experienced in this condition is not constant, but comes on at intervals; after continuing some minutes a complete remission occurs; but after a lapse of ten or fifteen minutes it returns with as much severity as before.

The symptoms just mentioned teach you unequivocally that a stone exists in the ureter.

Treatment.—During the paroxysm the patient should have an emetic of lobelia. This will diminish the pain, relax the ureter, and thus the more readily permit the passage of the stone. A warm bath or a vapor bath will be of great advantage here, and when the patient is in the warm bath you should sit by his side and rub the abdomen in the course of the ureter, for the urine having collected above the stone, and being insufficient to push the calculus forward, friction properly directed will prove of great service by its mechanical influence on the accumulated fluid, and it will be found agreeable to the patient rather than otherwise.

Continue warm baths and warm fomentations and the exhibition of relaxants,

and there need be no failure; but if nature and the attempts of relief fail in passing the calculus on, the disease then necessarily terminates in the destruction of life.

STONE IN THE BLADDER.

Directly the calculus has passed from the ureter into the bladder the symptoms change.

Symptoms.—There will be micturition, pain or a sense of irritation at the extremity of the penis, greatly increased upon making water, to the evacuation of which there is frequently a sudden stop, followed by an almost insupportable sense of bearing down, and at the ejection of the least drop the pain amounts even to torture.

The diagnostic symptoms of stone in the bladder are pain towards the extremity of the penis opposite to the frænum; discharge of bloody urine; sudden arrest of the water during the flow of a full stream, and a frequent disposition to void the urine, and pain in doing it, particularly in the erect position. The sudden arrest of the flow of urine is in consequence of either a valve formed in the urethra or the stone resting against the neck of the bladder.

When a person under this disease is voiding his urine, he is observed to place himself in a position in which every muscle may be as relaxed as possible; his knees are bent, his head resting against some object for support, while he draws the prepuce forcibly over the glans penis.

The urine is not changed unless there is much irritation in the bladder, but if the stone has been of long standing, and there is disease in the bladder, there will be clots of blood in the urine. Again, in the attempt to pass urine, there is a disposition to void the fæces, as the rectum obeys the motion of the bladder. In many cases the abdominal muscles are affected with violent spasms.

First, persons are affected with violent spasms of these muscles, then have disease of the mucous membrane of the bladder, and frequent shiverings. When the mucous membrane of the bladder is affected the urine will be white; there will also be flakes of matter in it, and when this is the case the patient is in a state that would be improper for an operation.

When boys are the subject of this disease there is generally a remarkable elongation of the prepuce. This is singular and not easily explained, unless it is produced by pressure on it. When the pain in this part is an exceedingly distressing symptom, pressure on the nerve deadens it—pressure is made and the prepuce thus becomes elongated by it.

Calculi either pass from the ureter or they are formed in the bladder around some extraneous body or around clots of blood, in either case forming a nucleus for the stone. The calculi will be composed of the triple phosphate or of uric acid, according to the degree of irritation which has been kept up; if it has been considerable the stone will contain the triple phosphate. Some stones are composed of concentric lamellæ, whilst others are not; in those which are

layer after layer is deposited and adheres, but the lamellæ are composed of much firmer material than the bond of adhesion which unites them.

Calculi in the bladder vary both in number and in size. Their usual weight is from half an ounce to an ounce, more generally under, and there is usually only one at a time. The magnitude of calculi in the bladder is generally in an inverse ratio to their number. When a great number of calculi are found in the bladder the circumstance is generally attended with an enlargement of the prostate gland, directly behind which a sacculus is formed. In cases of diseased prostate the bladder can seldom be completely emptied; and this particular stagnation of the urine in the sac is supposed to facilitate the production of calculi.

The urinary salts in calculus patients are not continually precipitated in the same quantities; in some cases, indeed, the process appears to be even suspended for a considerable time. Hence, a stone of middling size already formed may increase, but very slowly; and it has actually happened that a calculus which could be plainly felt with a sound, has remained more than ten years in the bladder, and yet, after all this time, been only of a moderate size. The pain which a patient experiences from a stone in the bladder is by no means in proportion to its bulk. It is not exactly in the inverse ratio to its magnitude, but still it approaches that inverse ratio.

When a stone becomes excessively large the patient generally loses the power of retaining his urine, and the distillation of urine from the bladder prevents that contraction of it which occasions so much pain to the patient in discharging the last drops of it.

Again, the pain does not so much depend on the form of the stone, as on the general irritability of the patient, and especially on the irritability of the bladder. Thus you will sometimes find a stone excessively pointed when the patient has complained of but trifling symptoms, and on the other hand, when the stone is perfectly smooth the patient suffers extreme pain; however, rough stones are more likely to give the greatest degree of pain.

There are four different kinds of calculi when chemically examined. The first is the uric acid, which is common, but not the most common form of calculus. The second is the triple phosphate or ammoniaco-magnesian phosphate. The third species is the mulberry, or oxalate of lime, and the fourth the cystic.

URIC ACID CALCULUS

Is distinguished by concentric lamellæ, and when cut has the color and appearance of wood. It is soluble in alkalies, and alkaline remedies are commonly recommended for this kind of stone.

AMMONIAC-MAGNESIAN CALCULUS

Is of a grayish white color, and not so distinctly laminated as the uric acid. It is insoluble in alkalies, but it is acted upon by the acids, but not in any considerable degree. A quantity of matter resembling mortar, which is in fact ammoniaco-magnesian phosphate, is generally passed from the bladder, and the urine is highly offensive.

MULBERRY CALCULUS

Consists of oxalate of lime, and is to a certain degree soluble in acids. It will be proper therefore, to give in these cases nitro-muriatic acid.

CYSTIC OXYDE CALCULUS

Has the appearance of brown sugar in a state of crystalization; it is not composed of concentric lamellæ. The uric acid or red gravel is easily diagnosed by the very high colored urine, very acid stains; the chamber red or copious deposits of a brick-dust sediment, with a burning or scalding sensation in passing urine. There is a general letting down feeling of the whole system.

Treatment.—Special attention must be paid to the general and hygienic management of the patient, regulate all the secretions, daily baths of soda and water (warm preferable), flannel next the skin, moderate exercise in the open air, a liberal diet, avoiding alcoholic drinks, fat, starchy, or saccharine agents; a change of air, occupation and surroundings if possible; then put your patient on five grain doses of bicarbonate of potassa three times a day. At the same time give:

R—Fld. Ext. Hydrangia	℥ iv.
“ “ Eupatorium Purp.	℥ ij.
Iodide Potass.	℥ iv.
Holland Gin.	℥ x.

Dose.—One tablespoonful before each meal. At night give:

R—Fld. Ext. Papaver.	} aa.
“ “ Lobelia.	
	5 ss.

Dose.—Twenty to thirty drops on retiring.

The above will dissolve the largest sized stone of acid formation, and should be persevered with for months. If this treatment is used perseveringly an operation will never be called for.

DIAGNOSIS OF WHITE GRAVEL OR PHOSPHATIC DEPOSIT.

The presence of white gravel produces no pain until the stone reaches an extra large size. In alkaline or phosphatic deposit we have a waste of nerve and brain tissue; in acid diathesis a waste of fibrin, and in the former the brain and nervous system suffers most, while in the latter the muscular and fibrous structure generally are deranged. The urine is alkaline, pale, copious, slightly turbid, of a low specific gravity, and of a peculiar odor. This urine deposits a chalky sediment in the chamber; blue litmus paper dropped in the urine of a patient of this class will be turned to a permanent red.

These deposits are present to a more or less degree in all cases of cerebral exhaustion, and whenever the nervous system is shattered, the vital energies depressed from excesses, etc.

The active treatment should be as indicated in the preceding—a good, generous diet, daily bathing; the nitro muriatic acid bath will be best in this diathesis well regulated secretions, a persevering use of tonics and diuretics.

The following prescription will meet the indications of the case:

R. —Tr Cinchona Comp.	℥ iv.
Pure Glycerine	℥ vii.
Phosph. Acid. Dil	℥ j.
Nitro Muriatic Acid	℥ ss.

Dose.—One teaspoonful in a wine glass of water before each meal.

R. —Fld. Ext. Hydrastis Can.	} aa.
“ “ Populus Trem	
“ “ Sanguinaria Can.	
“ “ Serpentaria.	

Dose.—Thirty drops in water, half an hour after meals. If the stone is obstinate then we would try the following ;

R. —Fld. Ext. Hydrastis Can	℥ iv.
Phos. Acid Dil	℥ ss.
Holland Gin	℥ iv.

Dose.—One tablespoonful three times a day.

In the other forms the symptoms are not so well marked out. In the mulberry calculus we shall find that there is a predominance of the oxalic acid diathesis, and consists of minute crystals, transparent, and in shape an octahedron, and, in some cases, the shape of a dumb-bell.

Oxalic acid, as a well known chemical principle, contains four equivalents of carbon and six equivalents of oxygen, and it requires eight equivalents of oxygen to unite with four equivalents of carbon to convert anhydrous oxalic acid into carbonic acid.

Now, if these two equivalents of oxygen are wanting in the system owing to imperfect oxygenation of the blood, oxalic acid in combination with lime forms an element in the urine.

The presence of oxalic acid as a persistent sediment in the urine is not merely a proof of an existing morbid condition of the system, but may give rise to two dangerous complications.

1. Concretions of oxelate of lime, mulberry calculus in the kidneys or bladder.

2. The presence of oxalic acid in the system may give rise to toxæmia, or the poisonous effects upon the brain, stomach and heart.

The main point in treatment is attention to diet, bathing, tonics and the administration of nitro muriatic acid and cinchona as directed in phosphatic deposit. Avoid the use of tomatoes, sugar, sorrel, rhubarb, everything that contains acetic acid, and the general management directed in other forms of calculi.

The cystic oxide calculus is of the appearance of brown sugar, and is not so hard and unyielding as the other forms.

The treatment will not differ materially from that directed in mulberry calculi.

In all forms of calculus, it is well to give the patient some demulcent drink, and, in extreme cases, inject the bladder with flax seed tea, elm, or marsh mallow.

STONES IN THE URETHRA.

When a stone is lodged in the urethra it is found in three situations: first, in the perinæum; secondly, opposite the scrotum; and, thirdly, opposite the frænum.

When you find a stone in the urethra, it will be vain to attempt to extract it with forceps; even when it is felt very near the orifice of the urethra, or when you can see it by opening the orifice, you can very rarely succeed in extracting it with the forceps.

If the stone is lodged in the pirenæum, and the patient is laboring under retention of urine from that cause, be very much on your guard not to displace it from its situation. You should pass the largest size bougie into the passage so as to reach the anterior surface of the stone; you should then tie the bougie to the penis, so that the urine may not escape by the side, and let it remain for a considerable time in the urethra. The patient will have an urgent desire to make water, but you must direct him not to attempt to pass his urine until you give him permission to do so. When the urgency of making water is so extreme that the patient can no longer endure it, untie the bougie from the penis, and as it is withdrawn, the urine accumulated behind the stone will gush forward, and the stone will generally pass into the vessel. When the stone is lodged opposite the scrotum, there is danger of the urethra giving way, and the urine escaping into the cellular tissue. In this situation they sometimes prove fatal.

When you have ascertained by the probe that the stone is in this situation, you must endeavor to push it about an inch behind the scrotum, where you should make an incision. It is wrong to make the incision through the scrotum itself, if you can avoid it, but if you are obliged to do so in consequence of your being unable to push back the stone, make the opening as large as possible so that the water may pass with great freedom through the cellular tissue, and escape externally.

If the stone is lodged in the urethra, opposite the frænum, a different plan will be necessary.

I have told you that you can very rarely succeed in extracting them with forceps; you must curve the end of a probe as much as possible, pass it down the urethra beyond the stone, and then withdrawing it you will generally succeed in extracting the stone.

If there should be great resistance, you may enlarge the urethra a little with the knife, at the frænum, or apply fld. ext. lobelia externally, which will relax and enable it to pass off.

STONES IN THE PROSTATE GLAND.

There are two species of calculi in the prostate gland, those which pass from the bladder in consequence of ulceration, and those which are found in the cyst formed in the prostate gland itself.

Stones in the prostate differ in composition from those in the bladder; they consist of phosphate of lime.

Calculi in the prostate gland may be readily detected by introducing your finger into the rectum, and may very readily be extracted by an appropriate operation.

NEPHRALGIA.

This depends upon the passage of gravelly concretion through the ureters, and is one of the most painful affections to which the human race is subject.

The pain usually commences immediately on the concretion leaving the kidneys, and never ceases until it passes into the bladder. During its passage a pain of the most excruciating nature is felt in the loins, passing through the groin, or abdomen, causing retraction of the organs.

The pain comes on in paroxysms with intervals of ease. Vomiting, small and feeble pulse, profuse perspiration, and a constant and urgent desire to pass urine, but all efforts are usually futile until the stone reaches the bladder, then the pain suddenly ceases.

The sudden coming on and paroxysmal character of the pain are our best diagnosis. There is seldom any fever attending.

Treatment.—Apply warm fomentations of lobelia over the region of the kidneys, and give fifteen drops of fluid extract of lobelia herb every hour, until the pain is relieved, and the effect of the medicine is felt on the nervous system. This will suffice to relieve almost every case.

URINE.

Healthy urine is transparent, of a citron yellow color, of a peculiar odor, and acid, saline, bitterish taste. Urine passed, say three hours after taking fluid only, is less colored and less odorous than that found soon after the digestion of a good meal; that only which is passed independent of the direct stimulus of food or drink presents the true characteristics of natural healthy urine.

Quantity Passed.—Under ordinary circumstances, in health, an adult will pass thirty-two ounces in twenty-four hours—two pints in summer, and about three pints in winter.

The skin, lungs and bowels, may supply the place of the kidneys, for a time, and the quantity of fluid passed will vary according to the condition of other secretory organs. We have an excess of urine in females, especially under the

emotion of joy, fright, grief, nervous disorder, hysteria, etc. Women and children pass more of the fluid, while men who live freely pass more of the solid principle of urine.

Again, to show how unlike the urine of some individuals is, during twenty-four hours, we have the specific gravity, after drinking freely of fluid, at 1003 to 1009, and after a full meal, we will have it from 1020 to 1029; after a good night's rest 1015 to 1030.

Composition of Urine.—Now we have hundreds of circumstances combining to change chemical composition of urine, and these change appearance, specific gravity, etc. We should not be surprised that two chemists, after analyzing the urine of the same subjects, two hours apart, will differ materially. Therefore, there is no test, outside of chemical examination, by which we can detect obscure disease. True in acid calculi, or where the acid principle predominates, we shall have a red sediment, brick-dust like, and that, in alkaline calculi, we have white sediment, sometimes forming a hard crust, when allowed to remain in the chamber. In certain conditions of women we have a peculiar flocculent sediment. Bloody urine is always visible to the naked eye, and need not be mistaken for something else. Other derangements of the urine are treated under proper heads in this work. It is needless to enter into full details, as to chemical examinations, etc., as it cannot be done, save by proper apparatus, and careful study, and those whose inclination leads them to investigate the subject further will find many valuable works on urinary disease, to which they are referred.

OXALURIA.

A morbid condition of the system, when the oxalic acid is detected in the urine, or rather oxalate of lime. This acid formation is found in the shape of octahedra, transparent, but sometimes in the shape of dumb-bells.

This condition of the urine is met with in patients laboring under dyspepsia, hypochondria, and acute, or chronic cutaneous disease, neuralgia, etc.

Treatment.—Avoid the use of all articles that are easily converted into oxalic acid—sorrel, rhubarb, tomatoes, pips of apples, sugar, etc. All drinks containing carbonic acid. Plenty of exercise. Rub the body well with a coarse towel, or sponge dipped in soda water, or rather water in which soda has been dissolved, and internally would give.

R—Citrate Quinine.....gt. x.
 “ Ferri.....gt. l.

Mix, divide into five grain doses, and take one three times a day, before meals. This will usually relieve within a few weeks.

Should acid continue to predominate in system, the iodide of potash, in two grain doses three a times day, will be admissible.

DISEASE OF THE SUPRARENAL CAPSULES.

The function of the suprarenal capsules is evidently to aid in the elaboration of the blood, possessing properties analagous to the spleen. Still, their precise office is not clearly defined.

The obscurity that surrounds those organs has not been dispelled by any investigations on the subject. The cause of disease in those capsules is unknown.

Symptoms.—The symptoms present are very significant; great prostration and debility, anæmia, loss of appetite, sickness, emaciation, a persistency of albumen in the urine; the white of the eyes a pearly color; gastric, intestinal, and cerebral disturbance; discoloration of the skin very variable, often like indigo, more frequently brown or bronzed, the depth of the color variable; but, as the disease advances, the color increases, becoming more marked as the other symptoms acquire greater prominence.

The destructive characteristic of this disease is the extreme exhaustion, anæmia, sinking, albuminuria, discoloration, etc.

The pigment deposit in the rete mucosum of the skin might take place without any trace of renal capsular disease.

As our knowledge of the disease is very unsatisfactory, all that can be done in treatment is simply to keep up the vital forces with good food, tonics, stimulants, etc.

ACUTE CYSTITIS.

Fever; swelling and pain in the hypogastrium; frequent and painful micturition, or ischuria; tenesmus.

Symptoms.—The definition comprehends the main symptoms of acute cystitis; in general, however, as in nephritis, there is nausea, if not sickness, and the pubic region is very painful when pressed upon. In chronic inflammation of the bladder mucous and muco-purulent, or sanious discharges are common, and prostatic or urethral affections accompany the vesical irritation; sometimes indeed these latter are the sources of the former.

Causes.—Calculary and other irritation, blows upon the pubic region, urethral and prostatic disease as just stated, cantharides, introduction of instruments.

Diagnosis.—This is easy from the obvious locality of the complaint.

Prognosis.—Is more favorable in the active or acute, than in the chronic form of the disorder; this last complication itself with affections of neighboring parts, becomes a formidable and protracted, and often, fatal disease.

Treatment.—Rest in the recumbent position, warm fomentations over the pubic region, stimulating poultices, etc. Then put the patient on:

R—Fld. Ext Lobelia.....	}	aa.
“ “ Papaya.....		3 ss.

Dose.—Thirty drops once in three hours, alternating with:

\mathcal{R} —Fld. Ext. Asclepias Tub.	} aa.
“ “ Eupatorium Per.	
	§ j

Dose.—Thirty to forty drops once in three hours.

Give freely of flax-seed tea, marsh mallow, elm water, and when the irritation is great we should inject the bladder with :

\mathcal{R} —Infusion of Flax Seed.	O j.
Sulph. Hydrastia.	grs. x.

Inject two or three times a day.

When the acute symptoms have passed, give diuretics and stimulating astringents as ;

\mathcal{R} —Fld. Ext. Buchu.	§ j.
“ “ Myrica Cer.	§ ss.

Dose.—Thirty to sixty drops three times a day.

Convalescence should be established on cinchona, nitro muriatic acid comp. in alternation with comp. syr. stillingia.

CHRONIC CYSTITIS.

This is more common than the acute, and is brought on by much the same causes, as violence, exposure to damp or cold, stone in the bladder, venereal disease and venereal excess, alcoholic liquors and acidity of urine, all tend to produce a chronic inflammation of the bladder.

Symptoms.—An urgent desire to void the urine, with pain in the urethra, tension of bladder, feeling as though over-distended.

There is generally an increased flow of mucous, which changes from a gray to greenish hue, often streaked with blood. The symptoms are similar to acute inflammation of bladder, only less severe.

Diagnosis.—Easily distinguished from stone. In chronic inflammation the pain is felt when bladder is full, while in stone the greatest suffering is when the bladder is empty.

Prognosis.—Favorable unless too long neglected, or the system runs down. In weak constitutions we sometimes have it run into enuresis, and sometimes in continence of urine.

Post-Mortem.—The blood vessels about the bladder are enlarged, the muscular coats thickened and contracted ; inflammation of a chronic nature sometimes runs into ulceration.

Treatment.—Rest, good, nutritious diet, flannel next the skin, warm salt water baths. Where we have fever give asclepias and serpentaria. Tonics are all important and should be given in alternation with alteratives.

\mathcal{R} —Fld. Ext. Hydrastia Can.	} aa.
“ “ Myrica Cer.	
Aqua.	§ j.
	O. j.

Dose.—One wineglass before each meal.

R —Syr. Stillingia Comp.....	℥ iv.
Fld. Ext. Uva Ursi.....	℥ ss.
“ “ Hydrangia	aa.
“ “ Eupatorium Perf.....	℥ j.

Dose.—One teaspoonful three hours after meals, or

R —Sulph. Quinine	aa.
“ Hydrastia	℥ j.

Divide into three grain powders and give one before meals.

R —Syr. Stillingia Comp.....	℥ iv.
Iodide Potass	℥ ij.

Dose.—One teaspoonful three hours after meals. Once a week inject the bladder with :

R —Nitric Acid	gtts. x.
Tepid Water.....	℥ j.

In a word, a general building up treatment is demanded, and any medicine that will increase vitality will be of advantage here.

ISCHURIA RENALIS, OR SUPPRESSION.

Suppression of urine is always a very formidable affection, whether it occurs as an idiopathic malady or secondarily in the course of other diseases. This affection must not be confounded with mere *retention of urine*. In ischuria the functions of the kidneys are more or less suspended or destroyed, the secretions of urine being either morbidly diminished or entirely suppressed. In *retention* of the urine, on the other hand, the urine is regularly secreted by the kidneys and conveyed into the bladder, but from some cause or other an inability to evacuate it occurs, and being thus retained it gradually accumulates, until in some instances the most distressing and even fatal consequences occur.

Symptoms.—*Ischuria renalis* may be partial or complete. In the former case, very small portions of urine are from time to time discharged from the bladder under symptoms often distressing. The patient is harrassed with a very frequent desire to pass off the urine, accompanied with more or less uneasiness or pain, and a sense of dull heavy weight in the iliac region, and in some cases much pain and tenderness throughout the whole lower part of the abdomen, together with great anxiety of feeling, nausea, vomiting, hiccough. In almost all instances of urinary suppression febrile symptoms are conspicuously present. The thirst is usually urgent, and where the suppression is complete and continues for some time, patients often experience a distinct urinous taste in the mouth, and the whole surface of the body, in instances of an obstinate character, exhales a very perceptible smell.

Whatever may be the immediate cause of the suppression, or with whatever phenomena it may be accompanied in its early stage, symptoms of cerebral oppression never fail to ensue. In complete suppression depending on paralysis of the kidneys, where little or no uneasiness is experienced in the abdomen or

urinary organ, the patient in the course of the second, or beginning of the third day, begins gradually to sink into coma, and finally dies in a state of complete stupefaction. Where inflammatory action of the kidneys is the proximate cause of the suppression, the coma is frequently preceded by delirium, and convulsions sometimes finally ensue.

Causes.—The immediate cause of suppression of urine may be either inflammation or paralysis of the kidneys, or mechanical obstruction. Nephritis is always attended with a greater or less suppression of the urinary secretion, but as both kidneys are very rarely inflamed at the same time, there is in general a sufficient quantity of this excrementitious fluid separated from the blood by the sound kidney to obviate any particular danger from this source. Of course whatever is capable of causing much irritation or inflammation of the renal organs may become the remote cause of this affection.

Diagnosis.—It is important to determine between suppression and retention. In suppression we have absence of desire to urinate, and the distended bladder in retention is often apparent to the touch when pressure is made over the pubic region, and in retention there is a full distended feeling, and often a desire to urinate without the ability to do so, all of which are absent in suppression in addition to other symptoms mentioned.

Prognosis.—The prognosis in ischuria is always extremely unfavorable. So long as the suppression is not complete, a reasonable hope may be entertained of an eventual recovery; for even a small secretion of urine by the kidneys will in general keep off the more alarming symptoms of cerebral oppression for a considerable time and give greater opportunities for subduing the renal affection. When the suppression is complete, the disease almost always terminates fatally in the course of four or five days, and often as early as the third day.

Treatment.—The treatment in this affection must be modified, according to the particular morbid-condition of the kidneys, as well as according to the nature of the remote cause. When symptoms of renal inflammation exist, the treatment already pointed out for the cure of nephritis should be energetically pursued. In cases attended with no decided manifestations of inflammatory action in the kidneys, diuretics are the means upon which our chief reliance must be placed. In general, stimulating articles of this kind have been found most beneficial—more especially where the disease appears to depend wholly upon torpor or paralysis of the kidneys.

Oil of turpentine in dose of ten drops with a wineglass of mucilage of elm or gum arabic; fluid extract of santalum album in dose of thirty to sixty drops every three hours. A good combination is:

R—Fld. Ext. Eupatorium Purp.....	aa.
“ “ Santalum Alb	3 ss.
“ “ Polygonum	aa.
“ “ Juniperius Bac.....	3.

Dose.—Thirty to sixty drops in warm water, and repeat once in three hours until the urine is secreted in moderate quantities.

The above is almost infallible, and where it fails but little can be hoped for from medicine.

The seed of the pumpkin or watermelon, made into a strong decoction, is excellent, and should be tried in the absence of other remedies. When the suppression is partial, the root of the garden parsley will act well.

RETENTION OF URINE.

Retention of urine is an inability, whether partial or total, of expelling by the natural efforts the urine contained in the bladder.

Symptoms.—The characteristic symptoms of this condition, previous to the introduction of the catheter, is a distention of the bladder, to be perceived by an examination of the hypogastrium after the patient has discharged all the urine which he is capable of expelling.

Causes.—The most frequent causes of retention of urine are strictures in the urethra and enlargement of the prostate gland in the male, and retroversion of the uterus in the female. There are several other causes which give rise to this condition; an accumulation of blood in the bladder, stones in the urethra, or pressure of matter between the prostrate gland and rectum, will sometimes occasion a necessity for opening the bladder.

Treatment.—Every case of retention of urine demands prompt assistance, but when the disorder presents itself in its complete form, the mischief of delay is of the most serious nature. If the bladder is allowed to remain preternaturally distended, it not only loses its contractile power, but is quickly attacked with inflammation and sloughing. At length some point of it bursts, and the urine is extravasated in the cellular membrane of the pelvis, spreading behind the peritoneum as far up as the loins and in other directions into the perinæum, scrotum and the integuments of the penis and upper part of the thighs. The inflammation thus excited is extended to the peritoneum and bowels, and death is the result. In all cases of retention of urine, your first indication is to procure a discharge of the fluid through the natural passage. In this disease I have seldom found the catheter necessary. Place your patient in a warm bath, just as warm as can be borne with comfort; give:

R—Fld. Ext. Lobelia	} aa.
“ “ Eupatorium Purp.....	
	} ʒ ss.

Dose.—Thirty drops, and repeat every half hour until complete relaxation.

Warm fomentations over the hypogastrium, poultices of lobelia herb and peach tree leaves combined.

If your patient is unable to sit up in a warm bath, then resort to the alcoholic vapor bath and the warm poultices. You will rarely meet with a case, even in severe stricture, but will yield to this treatment, unless it arises from some injury or mechanical obstruction; then the catheter must be resorted to. In passing the catheter in common cases, you have only to bear in mind two motions which are necessary to effect your purpose.

But in cases of enlargement of the prostate gland there will be some difference in the mode of passing this instrument.

1. When you are called upon to introduce the catheter, place yourself on the right side of the patient, pass it down under the arch of the pubes perpendicularly until you reach the membranous parts of the urethra, and then do not continue to pass the instrument in that direction, for if you do you will push it towards the rectum instead of entering the bladder; but having reached the membranous part of the urethra, you have only to give your hand a peculiar turn and it will immediately pass the bladder.

2. When the prostate is enlarged the urethra is pushed forward so as to be doubled on the point of the instrument. You must in this case pass the catheter down to the apex of the prostate gland; then carry the instrument towards the abdomen, so as to push the urethra as much as you can towards the perinæum; and then, having brought the urethra into a straight line again, depress the point of the instrument, and you will be enabled to pass it into the bladder.

DYSURY--DIFFICULTY AND PAIN IN VOIDING URINE--STRANGURY.

Difficulty and pain in urinating without any particular tendency to retention of the urine is a very common complaint.

In general, whatever is capable of increasing the irritability of the bladder, or of giving rise to the secretion of an acrid urine will cause more or less pain and difficulty in voiding the urine. It is particularly apt to occur where there is an excess of uric acid secreted with the urine; and where the urine is charged with the earthy phosphates it is seldom absent, although in this latter case the urine is generally more copious than natural, and does not properly come under the head of *dysury*, which implies *difficulty* in passing the urine as well as pain.

Symptoms.—The usual sensation of dysury are—uneasiness in the neck of the bladder; frequent, painful and slow micturition, with a sense of tenesmus, or straining *in perinæo*, particularly at the moment the last drops are voided; and a cutting or burning sensation in the posterior part of the urethra. Strangury is an extremely distressing affection. There is a continued urgency to void urine, which passes off in small quantities, or drop by drop, with the most severe burning and cutting pains in the neck of the bladder.

Causes.—It may be produced by a great variety of causes—such as excess in eating, and in drinking spirituous liquors, the free use of condiments; irritating diuretics, onanism, excessive venery, acid ingesta, inflamed hemorrhoids, ascari-des, suppressed catamenia, the irritation of vesical calculi, astringent injections, redundancy of lithic acid, or of the phosphatic sediments in the urine; leucorrhœa, repelled cutaneous affections, rheumatism and gout. Cantharides are peculiarly liable to give rise to this affection, and some individuals are so very susceptible in this respect that a blister applied to any part of the body will produce strangury. The spirits of turpentine also is very apt to occasion this painful irritation of the neck of the bladder. It occurs in inflammatory fevers,

particularly in hepatitis, jaundice, scurvy, and from verminous irritation, dentition in children, and long continued lactation.

Treatment.—Where there is reason to suppose that the disease depends on simple irritation of the neck of the bladder from some accidental cause—as injections, gonorrhœa, etc., it will, in general, suffice to empty the bowels by mild laxatives and to order copious draughts of bland, diluent drinks—such as barley water, flax-seed tea, or a solution of gum arabic, and perhaps a mild, soothing enema of lobelia and rest. When the disease is dependent on an excess of the lithic or phosphatic sediments, the measures already mentioned under the head of urinary calculi for counteracting these secretions must be resorted to.

When the urine is perfectly natural, both in quantity and quality, and contains no mucous, purulent, or bloody deposit, there is reason to infer that the cause of the irritation is not connected with the urinary system, and must be sought for elsewhere, as in the rectum, or uterine system in females. Should it depend on hemorrhoids, recourse must be had to the means mentioned in the chapter on hemorrhoids for counteracting it. Nervous hysterical females are liable to extremely violent pains in the neck of the bladder and urethra, and which are generally most intensely felt immediately after discharging urine. Cypripedium and scutellaria are the only remedies that I have found decidedly useful in cases of this kind.

R—Fld. Ext. Cypripedium.....	} aa.
“ “ Scutellaria	

Dose.—Forty drops three times a day.

Infants, as has already been said, are subject to violent pains of this kind in passing urine during the process of dentition. The existence of the complaint is recognized by the violent shrieks which they utter on voiding their urine.

The proper treatment in such cases is to open the bowels freely with the neutralizing mixture. In the evening, five to ten drops of lactuca should be administered. I have never failed of speedily removing the affection by these remedies.

When these cases are attended with a copious secretion of the phosphate of ammonia (an occurrence by no means uncommon), magnesia, which is so frequently administered to infants, is decidedly prejudicial.

In old people this disease is generally attended with a diseased condition of the internal coat of the bladder, or calculus irritation, or disease of the prostate. The careful physician will, of course, endeavor to ascertain the cause; and for this purpose it is particularly important to examine the urine, and the state of the prostate, by examining through the rectum. Females subject to leucorrhœa are apt to suffer the most excruciating pains on voiding urine, from an extremely irritable and tender state of the orifice of the urethra. So sensible is this part in some cases of this kind, that the slightest touch with the finger gives rise to extreme pain. I have found no remedy so effectual in cases of this kind, as a weak solution of sulphate of zinc and hydrastia.

R—Sulph. Zinc	5 j.
“ Hydrastia.....	grs. xx.
Aqua	℥ j.

Should be used two or three times daily as a lotion to the part, and a little glycerine applied with the finger, after each application of the wash. A strong solution of borax will also sometimes give relief; and I have used the citrin ointment mixed with a few drops of oil of almonds with much benefit. At the same time, however, that these applications are used, it will be necessary to use frequent injections of a weak tepid solution of myrica into the vagina, and to employ other means for counteracting the leucorrhœal affection. For the relief of strangury, caused by cantharides, etc., and which consists of a slight degree of inflammation of the neck of the bladder, copious draughts of mucilaginous diluents and fomentations of hops should be used. An enema of lobelia will, in general, procure very considerable relief. The free use of flax-seed tea, or of barley water, in conjunction with senecio aurantium will rarely fail to allay the suffering at once.

CATARRH OF THE BLADDER.

This is a condition where we have an excessive urinal discharge, and weak relaxed condition of the urethra and bladder. The amount of mucous discharged is sometimes enormous, and assumes a yellow, ropy appearance settling to the bottom of the chamber, and hanging to the sides of the vessel.

The mucous is produced from the internal surface of the kidneys, ureter and bladder.

The disease is not easily mistaken except for gonorrhœa, and it is distinguished from that by the absence of burning or inflammatory symptoms.

Causes.—Excesses in venery, colic, stimulants, strong diuretics, long-continued, sudden cold, and general derangement of the secretions, neglected gonorrhœa, etc.

Treatment :

R—Fld. Ext. Eupatorium Purp	aa.
“ “ Hydrastis Can	aa.
“ “ Myrica Cer	3 j.
“ “ Senecio Aurant	3 j.

Dose.—Forty drops in a wineglass of elm water, once in three hours.

Where the stomach is not already irritable, ten drops of oil erigeron, three times a day with a teaspoonful of sugar, will be found to meet the indications of the case.

Should it prove obstinate, however, put your patient on :

R—Sulphite Soda	aa.
“ Magnesia	3 j.

Dissolve in a half pint of water and give a teaspoonful three times a day. Remove all exciting causes as near as may be, and build up the general health on tonics, a good diet, etc.

ENURESIS—INCONTINENCE OF URINE.

This though not in general a painful affection, is always a very troublesome and distressing complaint. The urine passes off involuntarily, sometimes constantly in drops, as it is secreted and conveyed into the bladder; at others, only after a considerable portion has been accumulated in the bladder, the impulse coming on so suddenly and irresistibly, that the utmost efforts of volition are not able to restrain its immediate flow. In some instances the involuntary discharge occurs by day and by night, whether the patient be awake or sleeping—in other cases, by far the most common, it takes place only at night during sleep. This affection may, therefore, be divided into three varieties:

1. *Enuresis Paralytica*.—In incontinence of urine, from paralysis of the sphincter of the bladder, the urine passes off continually, as it is secreted by the kidneys without pain, and even without the least sensation of its occurrence. In such cases the diagnosis is not, in general, attended with difficulty.

In very old people it is, nevertheless, not uncommon to find the urine to dribble off involuntarily, without any particular paralytic affection of the sphincter. These cases occur in the slighter instances of partial retention of urine from a weakened state of the expulsive powers of the bladder; for, when the urine accumulates in the bladder to a certain degree of distention, the resistance to a further dilatation of the bladder, in conjunction with the pressure of the abdominal muscles, slowly forces the urine into the urethra, and causes it to pass off drop by drop. This variety of incontinence often occurs as a symptom of some general disease.

Thus it is frequently met with in the latter stages of low fevers—in paraplegia and hemiplegia; and it is occasionally the consequence of concussion of the brain and spinal injuries.

An inability to retain the urine has arisen from plunging into very cold water.

Among the local causes of this affection, the most common are difficult parturition; injuries done to the neck of the bladder by the unskillful employment of obstetrical instruments; a large calculus located in the neck of the bladder; lithotomic operations, a great dilatation of the neck of the bladder in the extraction of a calculus.

The Prognosis in this variety of the disease is generally unfavorable, and when it occurs as a symptom in febrile affections it is always one of the most dangerous indications.

Mere local paralysis of the sphincter of the bladder is indeed not dangerous so far as the life of the patient is concerned; but it is an exceedingly annoying complaint, and by the urine constantly dripping off, very painful and distressing excoriations on the inner part of the thighs, scrotum, and perinæum almost always occur.

2. *Enuresis from mechanical causes*, independent of paralysis of the sphincter of the bladder, is not unfrequently met with. Most of the mechanical or

organic causes, mentioned under the head of *ischuria*, may, under certain circumstances, give rise to incontinence of urine.

Tumors pressing on the bladder, as the gravid uterus, dropsical or scirrhus enlargement of the ovaria, tumors of the mesenteric glands, of the rectum, and of the neck of the uterus, have been known to give rise to this affection. It may also be produced by prolapsus uteri, hernia, or prolapsus of the bladder; by the irritation of vesical calculus, tumors and excrescences from the internal surface of the bladder, etc. These causes seem to operate in the production of incontinence of urine, by the pressure which many of them make on the bladder, and by the almost constant effort to evacuate urine, by which the sphincter may at last become so debilitated and relaxed as to suffer the urine to pass off slowly and involuntarily; and cases have occurred which arose from ulcerative destruction of a part of the sphincter.

3. There is a variety of incontinence of urine which sometimes occurs in very nervous or hysterical persons, and which may therefore be called *nervous enuresis*. The inability to retain the urine occurs in sudden and irregular attacks. The patient suddenly feels a most urgent desire to void the urine, and the impulse is so irresistible that, in spite of the utmost efforts of volition, the urine immediately passes off without allowing time to withdraw, or even to reach for a vessel. This variety of the affection occurs also in very young children. Its most common *exciting* causes appear to be worms, hemorrhoidal affections, suppressed catamenia, gouty irritation, and leucorrhœa. Frequently, however, no obvious causes of this kind are present, and the disease apparently arises from a morbid irritability of the urinary passages, in connection usually with a very excitable state of the general system.

4. *Enuresis Nocturna*. This is a very common complaint among children, and occurs occasionally also in adults. When awake, the individual subject to this affection experiences no inconvenience whatever in this respect, but at night, while sleeping and *lying on the back*, the urine is apt to pass off, either involuntarily, and without the least consciousness of its occurrence, or voluntarily, under the influence of a dream. In children this variety of incontinence of urine is often associated with some tendency to urinary disease, and very frequently a disposition to gravel; or sometimes, as in young females, with constitutional irritability and weakness; and in advanced life this affection is almost always associated with some organic or other affection of the neck of bladder or prostate gland. In those cases where the discharge occurs in consequence of a voluntary effort during a lively dream, the urine, on examination, will almost invariably exhibit some unnatural property, and most generally a strong disposition to or actual deposit of gravel.

Treatment.—From the foregoing remarks on the various and very distinct character of the causes and pathological conditions of urinary incontinence, it is obvious that the modes of treatment proper for its removal must be equally various and diverse in different cases. When the incontinence depends on general palsy, recourse must be had to the treatment mentioned under the heads of paralysis. In instances of urinary incontinence from mere local paralysis of the sphincter vesicæ, without any manifest spinal affection or organic cause, we

must endeavor by tonics and local stimulants to re-excite the activity of the sphincter.

Among the means that have been proposed for this purpose, fld. ext. myrica in doses of twenty drops every four hours, with mucilage of gum arabic. A good prescription where we have paralysis is :

℞—Tr Nux Vomica.....	} aa.
Fld. Ext. Zanthoxylum.....	
“ “ Cubeba Alco.....	
“ “ Uva Ursi.....	
	} ʒ ss.

Dose.—Thirty drops, say half hour before meals.

℞—Tr Cinchona Comp.....	ʒ i.
Phosphoric Acid Dil.....	ʒ ij.
Glycerine.....	ʒ viii.

Dose.—One teaspoonful half hour after meals.

Electricity is good, also stimulating friction to the spine. In urinal incontinence from mechanical causes we can seldom do more than palliate the disorder or procure temporary relief. When it occurs from the pressure of the gravid uterus, nothing but the delivery of the child will in general remove the complaint; yet in some instances incontinence of the urine occurs about the third and fourth month of pregnancy, and, after having continued for a time, goes off spontaneously before the termination of the regular period of gestation. In *nervous* urinary incontinence, tonics—particularly iron, cinchona, with a nourishing digestible diet, regular exercise in the open air, early rising, and, in general whatever is calculated to invigorate and to allay the morbid irritability of the system, constitute the appropriate means in cases of this kind.

When the patient is affected with leucorrhœa, or ascarides, or with an irritated state of the rectum from hemorrhoids, particular attention should, of course, be directed to the removal or mitigation of these affections.

Where the disease arises in children we should give special attention to the general health, use cold salt water baths to the hips, genitals, etc., and give internally :

℞—Tr. Chloride Ferri.....	} aa.
Fld. Ext. Uva Ursi.....	
“ “ Nymphia Odor.....	
Tr. Cannabis Indica.....	
	} ʒ ss.

Dose.—Twenty drops before retiring. Give blood and nerve tonics to brace up the whole system, and meet any indications upon general principles.

DIABETES.

A permanent increase with an alteration of the quality of the urinary discharge. It is usually divided into two species, according to the character of the fluid :

Diabetes Mellitus.

Diabetes Insipidus.

Of the latter there are three varieties :

1. That in which the urine contains an excess of *urea*. 2. That in which the urine is *albuminous*, and 3. That in which it is surcharged with phosphates.

DIABETES MELLITUS.

In this variety the urine is *saccharine*, of a pale straw color, sometimes approaching to a greenish hue; its smell resembles that of milk. It always contains less urea than healthy urine.

Symptoms.—Preceded for the most part by general derangement of health, especially derangement of the digestive and subsidiary processes. This state also accompanies the actual existence of the disease. We have also urgent thirst, parched mouth, costiveness, pain and heaviness in the lumbar region, general weariness and aversion to exercise, and various dyspeptic symptoms.

Continuing with an aggravation of the preceding symptoms, we observe a loss of strength, emaciation, dyspnœa, vertigo, headache, the gums ulcerated at the roots of the teeth, extreme restlessness, cramps and spasms of the extremities, weak mind, petulant temper, anaphrodisia, or impotency, and redness, swelling and excoriation about the mouth of the urethra, with phymosis. Not terminating suddenly, which, however, it sometimes does, the disease proceeds until the system is finally exhausted by hectic fever, with pulmonic affections, or an inveterate dropsy. The pulse throughout, though irritated, is generally weak.

The *renal secretion*, though usually excessive, varies from an indefinitely small increase to thirty pints in twenty-four hours, which may be kept up for weeks and months. It is of a pale straw-color, with a peculiar odor, resembling sweet whey or milk, and somewhat of a saccharine or honied taste. Mixed with it we may observe albuminous matter like chyle, and occasionally clots of blood. The saline substances, though bearing to each other about the same relative proportion, are much diminished. The urea is much reduced, but not entirely wanting.

On evaporation of a pint of fluid, an extract remains of an ounce and a half. The secretion in diabetes insipidus is insipid, pellucid, and a very little changed. A natural predisposition to diabetes exists in some individuals. I have known four members of one family die from this disease.

Causes.—*Remote.*—A morbid condition of the digestive organs and organs of assimilation, which favor the formation of sugar from the starchy, or farinaceous substances introduced into the alimentary canal, and its absorption into the blood and urine, a decayed and shattered constitution. It is most incident to the debauched in the decline of life, and especially to such as have been addicted to ardent spirits.

Whatever disorders the stomach or its dependencies seems to predispose to the production of the disease; also excessive venery and whatever debilitates the system or in any way depresses the vital powers and assimilative functions.

Exciting causes.—Mental emotion, fear, grief, anger, fear of disappointment, in a word, excessive mental emotions of any kind, often suspend the digestive and assimilative functions. Drugs, stimulants, such as liquor, tobacco, tea, sedentary habits, fatigue, want of sleep, accumulated bile, hard, indigestible food, improper diet may and do, to a certain extent, impair the healthy functions of the stomach, and thus bring on the disease where a predisposition exists.

Prognosis.—It must be regarded as a most formidable disease, especially in decayed constitutions.

Post-Mortem.—The kidneys and liver are found most affected. The former is, in some cases flabby, enlarged and of an ash color, in other cases vascular and inflamed. We may also observe morbid phenomena in the other abdominal viscera and the lungs. Sometimes the whole force of the disease seems spent on the chylopoietic viscera, while at others, it is spent on the urinary apparatus. The blood is deficient in animalization; and, when chemically examined, has not its ordinary proportion of fibrin and albumen.

There has been much discussion, whether the primary seat is in the kidneys, or digestive and assimilative organs. I am of the opinion that the primary seat of the disease is in the brain reflected to the organs of digestion, and as in lithiasis, the secretion of the kidneys is modified by the state of the digestive apparatus.

In diabetes they are caused to secrete sugar and an immense amount of fluid. But the abnormal condition of the blood which results from the disordered state of the assimilative organs, assists exciting the kidneys to the diabetive secretion. This excess of fluid eliminated by the kidneys is counterbalanced partly by the deficiency of perspiration, though it is also supplied by the large quantities of liquid taken into the stomach, and by a conversion of the solids. The hepatic, pulmonary, and other affections, are derived from an extension or sympathetic reflection of the gastric irritation.

The symptoms of diabetes are totally different from primary disease of the kidneys.

Treatment.—In this disease we have a perverted action of the digestive organs, and this perversion or derangement is usually due to some disease of the brain or nerve centre. The healthy action of the pneumo gastric nerve is interrupted, hence the organ it supplies (the stomach) does its work but imperfectly. This is fully demonstrated by the conversion of starch into sugar, thus affording material for perpetuating the malady. Now, in commencing our treatment we must enforce a rigid course of dietetics. We must carefully avoid all saccharine or starchy articles of food, while at the same time we must prescribe a nutritious course of diet, such as game, milk, fruit, fish, beef, and other articles of like character. A sea voyage would be advisable, if practicable; if not, salt water baths daily; gluten bread, that is, flour deprived of its starch, eggs, oysters, milk, in fact skim milk should be the only fluid used and, if possible, should take the place of water; any vegetable that does not consist of or contain saccharine matter may be allowed. The body should be carefully protected with flannel. Exercise in moderation, always in the open air.

Medical Treatment.—Astringent tonics are among our best agents in diabetes. With these may be combined sedatives or nervines as

R—Fld. Extract Myrica Cer.....		
“ “ Nymphia Odor.....		aa.
“ “ Uva Ursi.....		3 j.
“ “ Trillium pendu.....		
Sherry Wine.....		3 xii.

Dose.—One tablespoonful before each meal.

R—Phosphoric Acid, Dil.....	℥ j.
Tr. Cinchona Comp.....	℥ iv.
Fld. Ext. Papaver.....	} aa.
“ “ Serpentaria.....	

Dose.—One-half teaspoonful in a wine glass of sherry wine.

A warm bath at bed-time with stimulating friction to the whole body, and

R—Fld. Ext. Humulus, Lup.....	} ℥ j.
“ “ Lactuca.....	
“ “ Lobelia.....	

Dose.—Twenty to thirty drops in water.

The above treatment may be varied to suit each particular case.

DIABETES INSIPIDUS.

I proceed now to the consideration of those urinary diseases in which the inordinate secretion by the kidneys is attended with an excess, one or more of the regular ingredients of healthy urine. These affections bear a close resemblance to diabetes mellitus. Collectively they constitute the disease denominated *diabetes insipidus*.

In one variety of these urinary affections, the characteristic state of the urine consists in an excess of urea, with an augmentation of its quantity, often not inferior to that which occurs in diabetes mellitus. In this affection there is almost invariably a very frequent and distressing desire to pass urine, both day and night.

In some instances, though exceedingly seldom, the quantity of urine is not much increased. In a great majority of cases, copious diuresis is a prominent symptom.

In some instances the patient experiences a considerable sense of uneasiness or aching pain in the loins, and along the course of the ureters, and there is occasionally a good deal of irritation at the neck of the bladder, extending along the urethra. The skin generally retains its regular functions, being often moist with general diaphoresis, even when the urinary affection is exceedingly aggravated. The desire for food and drink also is not morbidly urgent, except in very violent cases; nor are the stomach and bowels often particularly deranged, the tongue being generally clean, and the alvine discharges regular both in time and appearance.

Persons of a thin, spare habit of body, with a sort of hollow-eyed anxiety of expression in their countenance are the most liable to this complaint. With respect to the causes of this form of urinary disease, whatever debilitates the system, and particularly the urinary organs, may give rise to the complaint.

There is another variety of urinary disease, in which the presence of a large portion of albuminous matter in the urine is the characteristic symptom. This is the variety which has been most commonly described under the name of diabetes insipidus; for, along with its albuminous principle, the urine is always greatly increased in quantity.

There are two varieties of albuminous matter occurring in the urine, namely, the chylous and serous.

The first occurs most frequently ; it may, however, be remarked that strongly defined instances of either variety are not very common, and that by far the most frequent form which the disease assumes seems to be of an intermediate character, that is to say the albuminous matters partake, in some degree, of the properties of both those of chyle and serum, though generally more those of the chyle.

Symptoms.—The general symptoms which accompany this affection, after it has continued long, and is violent, do not differ materially from those that attend diabetes mellitus. In violent cases the thirst becomes very tormenting, the appetite craving, and the skin dry and harsh, with progressive emaciation. In less aggravated cases, the constitutional symptoms are generally mild, and in some instances scarcely perceptible. The patient, however, generally complains of some degree of uneasy feeling in the præcordium, and a sensation of languor and feebleness in the muscles of the loins.

Causes.—No age, it seems, is wholly exempt from the formation of chylous urine, although it occurs most commonly after the middle period of life, and in persons of an irritable habit of body and impaired digestive powers, from a previous course of free indulgence in the pleasures of the table and in spirituous drinks. The exciting causes appear to be such chiefly as have a tendency to weaken and irritate the kidneys. Violent passions of the mind and protracted courses of mercurial remedies are also accounted among the ordinary exciting causes of this disease.

Prognosis.—This complaint is not attended with much danger, and in its milder form may continue for many years without producing any very serious consequences. In the more aggravated cases of chylous urine, however, a great degree of languor and emaciation sooner or later ensues, and life is ultimately destroyed, either by the supervention of hætic, or a gradual and total exhaustion of the vital powers.

The last variety of urinary disease which I have to mention is that in which there occurs *an excess of the earthy phosphates in the urine*. This affection is by far more common and distressing in its consequences than either of the two preceding urinary complaints. A preternatural copiousness of urine forms, in general, a conspicuous circumstance in this variety of the disease. In some instances, indeed, the quantity discharged is not inferior to that which occurs in the most perfect cases of diabetes. The urine is invariably pale-colored ; and in many instances it is perfectly colorless and pellucid.

When this is the case the quantity discharged is always very profuse, and it deposits no sediment on being left to cool. Occasionally it happens that the quantity of urine is not much greater than natural ; and, in this case, it is usually somewhat opaque, and deposits a very copious pale-colored sediment after standing awhile.

In none of the kindred affections already considered does the urine manifest so great a tendency to decomposition as in the present complaint. In a very few hours after being voided it becomes alkaline, and emits an extremely pungent smell.

Connected with these morbid conditions of the urine, there always exists

very great irritability of the general system, and an obvious derangement of the digestive functions.

The patient is tormented with flatulency, nausea, costiveness, or diarrhœa, attended with a sense of weight and oppression after taking food, and variable and capricious appetite. The stools are extremely unnatural, being either nearly black or clay-colored, or sometimes like yeast.

These are always accompanied by more or less of a sensation of pain, uneasiness, or weakness in the back and loins. There is a sallow, haggard expression of the countenance, and, as the disease proceeds, symptoms somewhat analagous to those of diabetes begin to appear—such as great languor, depression of spirits, coldness of the legs, complete anaphrodisia, and other symptoms of extreme debility.

Among the general local causes may be enumerated protracted depressing passions, excessive fatigue.

The most common local causes, besides the one already mentioned, are, some irritation about the bladder or urethra, especially when of a chronic character, such as a foreign substance introduced into the bladder, including all sorts of calculi, the retaining of a bougie or catheter in the urethra, strictures of the urethra in particular constitutions, and disease of the prostrate gland.

Treatment for Diuresis with Excess of Urea.—Tonics with alkalies will be found our best agents. The syr. hypophosphite comp. acts well here, and should be given in full dose three times a day before meals:

R—Syr. Stillingia Comp.....	℥ iv.
Iodide Potass.....	℥ ij.

Dose.—One teaspoonful half an hour after meal.

R—Fld. Ext. Papaver.....	} aa.
“ “ Humulus.....	
	℥ ss.

Dose.—Thirty drops before retiring, and if the bowels are constipated the syr. rhei et pottass. in tablespoonful dose once a day.

The diet should be simple, unirritating and digestible, and all kinds of stimulating drinks must be avoided. Some benefit will occasionally result from the use of lime water and milk in conjunction with the remedies just mentioned; but the principal object should be to establish the healthy action of the liver and digestive organs.

In diuresis attended with an excess of phosphatic salts in the urine, the following will be found among our best combinations:

R—Fld. Ext. Papaver.....	} aa.
“ “ Asclepias Tub.....	
“ “ Hydrangia.....	℥ j.
Nitro-Muriatic Acid.....	℥ ij.
Tr. Cinchona Comp.....	
Syr. Simplex.....	℥ x.

Dose.—One teaspoonful before each meal.

R—Fld. Ext. Uva Ursi.....	} aa.
“ “ Melissa.....	
“ “ Lactuca.....	℥ j.

Dose.—Thirty drops after meals.

Some benefit may also be obtained from local applications of a stimulating character to the loins, such as strengthening or capsicum plaster. Active purgatives are injurious; costiveness is almost equally injurious, and particular care should be taken to keep a regular action of the bowels. This may in general be accomplished by the use of two or three Seidlitz powders, without the risk of inducing frequent and debilitating stools.

The diet should be mild and nutritious. In general the lean parts of tender meats afford the best food for patients affected with this variety of urinary disease. In some instances, however, a diet of this kind, from the very irritable state of the general system, renders the patient very uncomfortable during the period of digestion. In such cases farinaceous, and particularly acescent vegetable articles of food, will usually answer very well.

IRRITABLE BLADDER.

During the latter stages of gonorrhœa it often happens that the patient is annoyed by a frequent desire of voiding his urine, arising from an irritable state of the bladder; this symptom at length becomes so urgent that the inclination occurs so often as every ten minutes or quarter of an hour. The complaint will also proceed from retaining the urine too long. The pain that the patient feels is in exact proportion to the quantity of urine contained in the bladder; the greater the quantity the more severe will be the pain.

Sometimes in this condition the urine will be mixed with blood; this appearance is calculated to deceive you, and excite a suspicion of the existence of stone, and induce you to pass a sound for the purpose of satisfying your doubts; now, in this disease, the introduction of an instrument into the bladder is highly improper, as it would produce additional irritation. You may readily distinguish this derangement from stone, for in the irritable bladder the pain is felt when the bladder is full; but in a case of calculus the pain tortures when nothing but the stone remains. Irritable bladder of itself is a dreadful torture, the patient's life is a burden to him, he is obliged to keep from society, and linger away his tedious hours in solitude.

Treatment.—We should endeavor to give the patient rest, and to this end we would give freely of flax seed tea, marjoram, elm water, or mucilage of acacia. At the same time administer:

R̄—Fld. Ext. Lobelia	} aa.
“ “ Cypripedium	
“ “ Scutellaria	
“ “ Lactuca	
	5 ss.

Dose.—Thirty to forty drops, three or four times a day.

If there is great irritability, we would inject the bladder with:

R̄—Sulph. Hydrastia	} aa.
“ Morphia	
Aqua	
	grs. x.
	℥ j.

Inject one-half night and morning, and if the constant desire to void urine

remains, then we shall introduce a catheter and leave it in place so that the urine may draw off as fast as secreted.

Sometimes irritable bladder goes on to ulceration; the urine will then be mixed with blood; there will likewise be a discharge of bloody mucus, and the inclination to void the urine will be more frequent and exceedingly urgent.

If the bladder should be ulcerated, you must pursue exactly the same plan of treatment, it is the best that can be adopted; for by keeping the bladder at rest you afford the sores an opportunity of healing.

EXTRAVASATION OF URINE

May proceed either from the bladder or from the urethra.

The bladder may give way from ulceration, or it may be wounded in surgical operations, or it may be lacerated by direct violence.

When the urethra bursts it is generally as a consequence of retention following stricture, or from external injury.

Symptoms of Extravasation from Retention.—The patient is conscious that something has given way, perhaps while he was straining. The rupture is invariably in front of the posterior layer of the triangular ligament. The immediate feeling is one of relief. Soon, however, the scrotum and lower part of the belly become infiltrated with urine. The skin is stretched, feels doughy, crepitates, and, if relief is not afforded, rapidly run into sloughs. At the same time there is great prostration, with inflammatory symptoms of an asthenic kind, a brown tongue and a tendency to muttering delirium.

If the extravasation arises from injury, the rupture may be situated in the bladder or in any part of the urethra. If it is behind the posterior layer of the triangular ligament, the outward signs may be less distinct than when it is in front of that point, but the case will be more certainly fatal.

Treatment.—This must be prompt and vigorous. Free incisions should be made through the skin wherever the tissues are infiltrated so as to give vent to the extravasated urine. Poultices should be applied so as to promote the separation of the sloughs, and afterward water dressing, or stimulating lotions. If possible a catheter should be passed at once. If this cannot be done, the urethra should be opened from the perinæum, the stricture being dealt with at the same time, or subsequently, as the surgeon may think fit. The diet should be liberal, including beef tea, eggs, and wine or brandy.

The medical treatment should be stimulating and supporting, as there is a great tendency to death from exhaustion.

URINARY ABSCESS

Is a frequent result of stricture. It may arise from irritation, or it may be caused by the escape of urine into the submucous cellular tissue, in consequence of ulceration. In either case an abscess forms in the immediate neighborhood of the urethra, sometimes communicating with it from the first.

Such abscesses occur at any part of the urethral canal, but they are most common near the bulb (*perineal abscess*). The symptoms are those of acute abscess. When they are situated behind the line of the scrotum, they should be opened by a free and early incision. If a stricture exists, it should be dilated as soon as possible.

URINARY FISTULA

Often forms, more especially in the perinæum (*fistula in perineo*) as a consequence of stricture or urinary abscess. A fistulous track exists between the urethra and the skin, and by this the urine dribbles away whenever the patient makes water.

Treatment.—The first thing is to dilate the urethra so as to establish the natural channel for the urine. The next point is to close the fistula. This is often a work of no small difficulty. Sometimes, when the fistula is narrow and recent, the use of a stimulating lotion, or the application of chloride zinc, and then keeping the edges in contact by the best means possible; a dressing of the black salve after the inflammation produced by the zinc will have good effect.

CANCER OF THE BLADDER.

The bladder is often secondarily affected in cases of cancer of the rectum, but it may also be the primary seat of disease. When this happens the growth will be found to be either medullary or epithelial.

Symptom.—These are frequent and difficult micturition, and pain extending throughout the pelvis and along the penis, especially when the bladder is empty. The urine is thick, fetid and mixed with blood. If the sediment is examined with the microscope it may, perhaps, facilitate the diagnosis.

Treatment.—This is merely palliative. All that we can do is to support the strength by a generous diet and tonics; to check the tendency to hemorrhage by styptics, such as the gallic acid, or the muriated tincture of iron, and allay pain by phytolacca.

SPASM OF THE BLADDER.

All muscular structures are subject to spasmodic action; the bladder having a muscular coat, is consequently frequently affected with spasm.

The common causes are anything that causes irritation, as stone, acid urine, tumors in or adjacent, ulceration of the bladder, irritating drugs, as cantharides, sexual excess, venereal disease, spinal irritation, intestinal worms, etc. It usually comes on in paroxysms of severe pain at the lower portion of the abdomen, which extends along the urethra to the orifice of the canal—spasmodic pain.

In the treatment we must depend on the anti-spasmodic tincture, given every few minutes, in sufficient doses to relax the spasm, the hot bath, hot fomentations or large doses of the tincture of lobelia. The patient must keep under these remedies until the paroxysm disappears. Suppositories of lobelia are invaluable; after the spasm has been controlled the cause must be removed.

PARALYSIS OF THE BLADDER.

The muscular coat of the bladder may become paralyzed from disease of the bladder, or from some derangement of the spinal cord, or from constitutional debility. The paralysis may be due to over distension of the bladder—a dilatation of the muscular coat, brought on by holding the urine too long—is unable to micturate when the desire is felt. Injuries to or disease of the brain or spinal cord often bring on paralysis. The natural decay incidental to old age; poisons in the blood, rheumatic, gouty, syphilitic disease of the neck and bladder; enlargement of the middle lobe of the prostate gland. Pressure of the head of the child in labor, or tedious labor often produce it.

Whenever the bladder is paralyzed its contents are retained, the urine dribbles away by the urethra; the resistance to its escape at the neck of the bladder being overcome when the walls are incapable of further dilatation. Distension of the bladder is very apt to impair its functions.

In all cases of paralysis of the bladder the urine is found loaded with mucous of a strong ammoniacal odor, of an alkaline reaction, and loaded with phosphates—the neutral triple phosphates of magnesium and ammonium. In disease of the spinal cord the walls of the bladder are so weakened that the urine readily becomes decomposed.

The urea is converted into carbonate of ammonium; the urine thus loaded inflames the mucous membrane and causes it to secrete a thick viscid mucous.

Symptoms.—An early symptom of paralysis of the bladder is pain at its neck and in the glands penis; but after a little time the bladder loses its sensibility, and the desire to void urine is not experienced. The constitutional disturbance is usually severe; the pulse becomes quick, wiry, feeble, the tongue coated; appetite fails; great depression and restlessness; vital power shattered, and the patient sinks into a state of stupor, and dies from exhaustion.

Treatment.—If the paralysis depends upon over distension of the bladder, instant relief must be afforded by drawing off the urine with the catheter, slowly and cautiously, and this should be performed three times daily, until permanent relief is afforded by restoring the contractile powers of the bladder. In paralysis of the bladder we shall find electricity, hip-baths of warm salt water with friction, and internally:

R—Tr. Nux Vomica	} aa.
Fld. Ext. Zanthoxylum	
“ “ Santellaria	
“ “ Hydrastia Can	
	} ʒ ss.

Dose.—Twenty to thirty drops three times a day.

The cinchona comp. with dil. phosphoric acid will be found excellent. The treatment will have to be varied to meet the causes upon which it depends.

In the general management of all the affections of the bladder an effort should be made to build up the nervous system—good diet, generous to a fault—a judicious, alterative treatment and special tonics to meet the indications of the case.

The character of the urine in all cases demands attention. If it is acid, it should be neutralized; if alkaline, the greatest care should be exercised to see that the urine is evacuated, so that no sediment remain and undergo decomposition or form a nucleus for calculi.

A decoction of hydrangia is indicated in all cases; it tones, astringes and promotes vitality in the viscus.

DISEASES OF THE GENERATIVE SYSTEM.

MALES.

AFFECTIONS OF THE PROSTATE GLAND.

There are three species of disease, exclusive of the formation of calculi, by which the prostate gland is affected, viz.: acute inflammation, chronic inflammation or enlarged prostate, and the fungus polyphi.

ACUTE INFLAMMATION OF THE PROSTATE GLAND.

This complaint is not confined, like chronic enlargement, to late periods of life, but attacks persons of any age, and generally terminates in suppuration.

Symptoms.—The most prominent symptom which characterizes this disease is violent pain immediately after discharging the urine, and in this respect the disease resembles a stone. As the inflammation advances, an abscess will be produced in the gland, and retention of urine the consequence.

Treatment.—Emetics, mild laxatives, and warm fomentations of hops, or discutient ointment over the region of the prostate. Prompt and energetic treatment will enable you to bring about resolution, and to this end you should adopt the general line of treatment recommended under the head of inflammation. It is also necessary the catheter should be used. You, therefore, pass a common catheter, and about the fourth day you will perceive that matter escapes through it; so that this, coupled with other circumstances, stamps the nature of the complaint. Rigors do not attend the formation of this matter.

CHRONIC INFLAMMATION OR ENLARGEMENT OF THE PROSTATE GLAND.

This is the consequence of age and not of disease, and is characterized by a number of symptoms sufficiently particular to distinguish it from stone.

Symptoms.—In these cases there is sometimes partial retention of urine; the patient is a long time voiding his urine, which has a powerful smell, arising from its being ammoniated in consequence of its long continuance in the bladder. The next symptoms observable are pain and numbness in the glans penis, the prepuce not possessing its usual sensibility; there is a sense of weight and uneasiness in the perinæum, relieved by pressure with the finger, pain in the back of one or both thighs, in the loins, and at the origin of the sciatic nerve and course of the ureters; and the fæces are flattened from the pressure which is made upon the rectum by the swollen gland.

The urine finally acquires a highly offensive ammoniacal smell, and at length becomes white or milky, and when long retained, brown and even bloody.

If the enlargement of the prostate gland continues to proceed for a length of

time, it will, in many cases, occasion a complete retention of urine. This may, however, be the effect of retaining more urine in the bladder and for a longer period than it ought, or it may be the result of checked perspiration, but in either of these cases exciting a copious perspiration will often afford relief. The prostate gland may increase to an enormous size laterally, without giving rise to retention of urine; but the enlargement which occurs posteriorly in the third lobe, frequently occasions retention, for the enlargement is situated immediately behind the orifice of the urethra, so that the urine collects behind the swelling, presses it upon the mouth of the urethra and forms a complete barrier to its passage.

Post-Mortem.—From the appearance on dissection after death, as the prostate enlarges it is pushed forward, in consequence of which the urethra becomes curved immediately before the apex of the prostate; indeed, the coming forward of the prostate causes the urethra almost to double upon itself; the curve thus formed is at the symphysis pubis, and it is in this situation that the difficulty of passing the catheter in diseased prostate is found.

Tracing on the course of the urethra behind the curved part, that canal is seen much enlarged. The next thing we observe is, that the urethra itself is considerably enlarged—that is from an inch to an inch and a half to two inches, which increase of length is behind the pubis, and it is owing to this circumstance that you are under the necessity of carrying on the catheter so great a distance after its point has passed the arch of the pubis. We also find the bladder much enlarged in this disease, as also the ureters and the pelvis of the kidneys.

Causes.—With regard to the cause of retention of urine in those cases of enlargement of the prostate gland where the disease exists in the third lobe, it generally arises from the urine having been allowed to remain in the bladder for too long a period; this collecting in so large a quantity that the swollen lobe is pressed forward against the mouth of the urethra, and thus closes the entrance to that canal.

The enlargement of the prostate laterally may be readily ascertained by introducing the finger into the rectum, but the enlargement of the middle lobe can be learned only then. When, by the introduction of a catheter or bougie (and the latter is the best), it will be found to stop suddenly, you are then to introduce a catheter for the purpose of drawing off the water; the instrument will be resisted in its common course, and you must *depress* the handle a good deal, with a view of tilting its point over the enlarged gland; thus the end of the instrument will be rising perpendicularly, as it were, behind the pubes.

Treatment.—Your object of treatment should be to act upon the gland by means of small doses of:

℞—Syr. Stillingia Comp ʒ iv.
Iodide Potass ʒ ij.

Dose.—One teaspoonful once in three hours, rub well in over perinæum the discutient ointment, which has a tendency to relax and reduce the gland. In connection with above alteratives use:

R—Fld. Ext. Eupatorium Purp.....	} aa.
“ “ Iris Versicol.....	
Phosphoric Acid Dil.....	
Fld Ext. Apocynum Can.....	
	3 ss.

Dose.—Thirty drops three times a day, when the enlargement is the only complaint. If there is retention, you must relieve this symptom and afterward guard against its return.

Administer an emetic, apply warm fomentations to the penis (a poultice of crackers sprinkled with lobelia is excellent). Give a mild purgative, an alcoholic or sitz bath. Then proceed with the constitutional treatment indicated above, and in many cases, a complete cure will be effected.

When you are called upon to relieve retention of urine from enlarged prostate, by the introduction of a catheter, the instrument should be fourteen inches in length and a quarter of an inch in diameter.

In consequence of the pressure within, a broad instrument will answer better than a narrow one, for being bulbous at the end, it will readily ride over the enlargement. When introducing the catheter you will meet no difficulty until you reach the curve, which the enlargement of the gland has produced in the urethra; the handle of the instrument is to be here slightly raised for the purpose of insinuating the point through the curved part. Having passed this, you are then to depress the handle completely between the thighs, so as to occasion the point of the instrument immediately to rise perpendicularly above the pubis, in which way it will readily enter the bladder.

In the treatment of enlarged prostate an elastic gum catheter is sometimes introduced into the bladder and kept there for a continued relief to the patient. In passing an elastic gum catheter the removal of the stilette will sometimes cause it to enter with ease, when it would not previously pass at all.

If it be deemed requisite to leave the catheter in the bladder, I should prefer one of pewter, for it can be curved down before the scrotum, and by plugging up the end the patient may move about as he likes, and at any time he wishes can expel his urine.

If a pewter catheter is used it should be quite new, and ought not to be worn for a longer period than a fortnight, for the urine acts upon the metal, renders it brittle, and may probably cause the instrument to snap.

FUNGUS POLYPI AND THE PROSTATE GLAND.

The last circumstance connected with the prostate is fungus polypi growing from its base. I am not aware of any treatment that is likely to be successful for the removal of this disease. It appears to be entirely out of our reach. A thorough constitutional treatment should be adopted; the vital powers increased if possible, and nature may be enabled to throw off the disease.

PHIMOSIS

Means an abnormal contraction of the free border of the prepuce. It may be congenital, or it may be caused by the cicatrization of ulcers or chancres. When it is present the præputial secretion is apt to be retained under the foreskin, where it gives rise to much irritation and to occasional attacks of inflammation with discharge. Phimosis is often the exciting cause of cancer of the penis.

Treatment.—Warm water should be injected regularly and habitually under the foreskin. This sometimes effects a great improvement. But in most cases an operation will be required. If the foreskin is long and tight, or if it is thickened by cicatrices it should be drawn forward, held between the blades of a forceps so as to protect the glans penis and cut off evenly by one sweep of the knife. If, however, the case is less severe, it will suffice to slit up the prepuce on its dorsal aspect as far as the base of the glans. This may be done by introducing an oiled director underneath the foreskin, and passing upon it a curved, sharp-pointed bistoury, piercing the skin and cutting from within outwards. The mucous membrane will probably require a second incision, for the chief seat of the constriction is there; it should then be stitched to the skin around the line of the wound and water dressing applied.

PARAPHIMOSIS.

When a tight foreskin is drawn over the glans and allowed to remain there it constitutes the condition known as paraphimosis. The penis is constricted, the skin becomes œdematous and the mucous lining of the prepuce and the glands become congested. If this state of things is allowed to continue, ulceration or sloughing takes place.

Treatment.—Having oiled the parts, take the penis between the fingers of both hands and draw the constriction slowly but steadily forwards, at the same time with your thumbs you compress the glands and push it backwards. Sometimes the constriction may have to be divided with a knife before reduction can be effected.

HYPOSPADIAS AND EPISPADIAS.

Sometimes the urethra, from a congenital malformation, terminates on the under surface of the penis before it reaches the point of the glands. This is termed *hypospadias*. When it presents itself in a somewhat similar way on the dorsal aspect, it is called *epispadias*. The malformation may be very slight; or it may extend, in the one case, to the scrotum; in the other, the exterior wall of the bladder.

Treatment.—When the deformity is only slight, it does not in any way inter-

fere with the natural functions of the urethra, and requires no treatment. When it is extensive, the patient may have to wear a mechanical contrivance to protect the parts; or an attempt may be made to cure the deformity by means of an operation.

CANCER OF THE PENIS

Occurs only in those who are advanced in life. It may often be traced to the irritation caused by congenital phymosis. It generally takes the form of epithelial growth. A small tubercle, or ulcer, forms on the inner surface of the prepuce, spreads and implicates the glands. Gradually the growth increases in size until it presents a rough, irregular mass which discharges an offensive matter. The lymphatics of the penis become swollen, and the glands in the groin are enlarged. If the orifice of the urethra is involved, micturition may be difficult, or there may be complete retention.

Treatment.—The only treatment worth mentioning is the constitutional and local directed under the head of cancer. This should be resorted to, and if seen in early stage a cure may be readily effected.

HYDROCELE.

Hydrocele is an accumulation of water in the tunica vaginalis testis. Hydrocele may be of two kinds: first of the tunica vaginalis; and the second of the spermatic cord.

TUNICA VAGINALIS.

The swelling in hydrocele of the tunica vaginalis at first shows itself at the lower part of the scrotum, and gradually rises till it arrives at the abdominal ring; is of a pyriform shape; largest two-thirds of the way downwards; a little less at the bottom, and smallest at the ring. The common formation of hydrocele is unattended with pain, excepting, however, in those cases where it has been the result of inflammation; but generally speaking there is no pain, and the patient accidentally discovers the existence of the swelling, and often not until it has arrived at considerable magnitude. Commonly there is no redness of the scrotum and no discoloration. The ordinary situation of the testicle in hydrocele is two-thirds of the way down the tumor, at the posterior part; but in this respect it sometimes varies.

The testicle is sometimes found in the front, sometimes at the bottom, and at other times attached to both the anterior and posterior surfaces. These varieties depending upon adhesion from inflammation before the collection of fluid.

Diagnosis.—The diagnostic marks of this disease are, its sense of fluctuation, its transparency, lightness, form, freeness from pain, and the history of the case. Diseased testicle may be easily distinguished from hydrocele by its weight and flatness, and the pain and sickness which it occasions; and from

hæmatocele, or a collection of blood, by the history of the case, and the latter immediately following the receipt of an injury. In very old cases of hydrocele, and in persons who have long resided in hot climates, the tunica vaginalis is much thickened, so that there occasionally is great difficulty in detecting the transparency of the tumor.

The contents of hydrocele is usually yellow serum, which gradually rises from the bottom of the tumor till it arrives at the abdominal ring; but this, however, is not always the case.

Sometimes the water of hydrocele forms two swellings, one above ring, and the other below, thus giving cause to suspect hernia; and although the upper part dilates upon coughing, from the action of the abdominal muscles, its transparency and lightness will readily distinguish the disease. There are also other variations in the disposition of the fluid in hydrocele.

CONGENITAL HYDROCELE.

In addition to hydrocele of the tunica vaginalis and spermatic cord, there is another variety called the congenital hydrocele.

It is in consequence of a communication having from birth existed between the tunica vaginalis and the cavity of the abdomen. When the parts are natural and perfect, there is an opening leading from one to the other, as you know, but occasionally the natural closure does not take place, and then a fluid may descend from the abdomen and collect in the tunica vaginalis.

Congenital hydrocele may be readily diagnosed from any other in consequence of your being enabled with ease to return the water into the cavity of the abdomen by placing the person upon his back and then elevating the scrotum.

In these cases I would recommend you to have a truss worn over the ring until you have succeeded (by adhesion of the parts) in destroying the communication, and if the health is good, the water will become absorbed and an operation unnecessary.

Cause.—The cause of hydrocele appears to depend upon increased secretion, as the vessels are dilated, though there is generally no inflammatory action. Inflammation of the testicle will give rise to hydrocele, for as the inflammation disappears hydrocele forms. This can generally be removed by exciting absorption; apply to the scrotum a lotion composed of the solution of iodide of potassium and muriate of ammonia. These means will be found to have considerable influence in hydrocele which results from inflammation, but in the other forms they have none.

Treatment.—Hydrocele, if left to itself, will often undergo spontaneous cure, but we are frequently called upon to use a palliative treatment, by drawing the water off, and in some cases a radical or curative treatment by the after use of stimulating injections or other means,

When persons are afraid of the curative treatment, or when it would be attended with inconvenience, as also in old persons, the palliative will be demanded, and insignificant as it may appear, it has been known to cause the destruction of life. I would, therefore, advise, whenever you perform this operation on old persons, to make them keep their beds for a few days afterwards.

In performing the operation, a trocar and canula is all that is necessary. Whether you perform it for the palliative or the curative treatment, remember that the testicle is usually two-thirds of the way downwards at the posterior part; introduce the trocar in the forepart obliquely upward, indeed almost perpendicular, to avoid wounding the testicle; withdraw the trocar the instant you believe that the canula is in the tunica vaginalis: and once having the trocar in, take care to keep it there till the operation is concluded by grasping the tumor at the posterior part so as to keep it tense where the trocar entered.

If you wish to accomplish this operation bloodlessly, to prevent internal bleeding, and the formation of hæmatocele, keep the patient, at the time you are doing it, in the erect position. There is no necessity for any after application; on the following day the wound will be well.

The palliative treatment is required to be repeated in proportion to the dropsical tendency existing in the person. In some it will be necessary once a month; in others, once in three months, but generally speaking, the usual time is every six months.

The radical cure of hydrocele is effected in three ways:

1. By absorption.
2. By adhesion.
3. By granulation.

Put your patient on a thorough alterative course, as:

R.—Syr. Iris Versicolor..... ʒ viii.

Dose.—One teaspoonful before meals.

<i>R.</i> —Fld. Ext. Apocynum Can	} aa.
“ “ Eupatorium Perf.....	
“ “ Taraxacum	
“ “ Sanguinaria	

ʒ ss.

Dose.—Twenty drops with sugar and water after meals.

Keep the bowels regulated; suspend the scrotum in a suspensory bag fastened by a tape around the abdomen, just below the umbilicus, and keep constantly wet by a stimulating lotion of equal parts of muriate of ammonia and iodide of potass., or instead of the above we might rub well in over the hydrocele the discutient ointment, using it freely night and morning.

When cases of hydrocele do not yield to absorption, or are too far advanced to attempt it, your next resource is to endeavor to cure by the adhesion of the tunica vaginalis, and thus prevent the future collection of fluid. This is effected in three ways, either by a seton, incision, or injection.

Setons.—Setons are very rarely used, but in young persons whose hydroceles do not give way to the absorbent plan before mentioned, rather than inject use the seton; the thread should be allowed to remain for ten or fourteen days, till inflammation and the adhesive process is set up.

Operation.—Take a curved needle armed with thread and carry it into the tunica vaginalis and scrotum, just at the point where the trocar had been previously introduced, and include two inches above the point where the needle enters and bring it out sufficiently long; inflammation will generally ensue, and adhesion of the tunica vaginalis come on.

Incision.—If there is any suspicion of a disease of the testicle, you may use the incision (except in old persons), and when the opening is made sprinkle sulph. hydrastia into the wound to prevent immediate adhesion, and to promote granulation.

Injection.—The operation more generally required for the radical cure of hydrocele is that of injection.

After the water has been drawn off in the usual manner, and the canula still left in, you are to force into the scrotum, by means of an elastic syringe, a stimulating fluid for the promotion of adhesive inflammation. When you inject for hydrocele you should place the patient in a recumbent position.

Before you introduce the trocar and canula, make it a rule to squeeze the scrotum and tunica vaginalis, so as to make the part where the fluid is most distinct very tense, then introduce them obliquely in the same manner as in the palliative treatment. Having passed the trocar and canula into the tunica vaginalis, withdraw the trocar, and push the canula alone carefully upward so as to prevent any injury to the testicles or spermatic cord. You should nip the tunica vaginalis round the canula to guard against the instrument being diverted, and thus throwing a portion of the fluid into the cellular tissue, thereby leading to destruction. Having taken this precaution, you are gradually to throw up the injection, confine it in the tunica vaginalis, and move the scrotum from side to side, so that the fluid may reach every part of the surface. It should be suffered to remain four or five minutes.

The elastic syringe should be of a moderate size, and not too much fluid should be thrown in at a time, lest the action of the cremaster muscle should force a part of it into the cellular tissue. If this happens, inflammation and sloughing may take place around the part at which the canula is introduced.

The fluid used for injection should be of a stimulating kind.

If you use port wine, the proportion of wine and water should be half and half; but the best injection you can use is the sulphate of zinc in the proportion of one drachm to a pint of water, as you can always depend upon the degree of strength. While the injection remains in the tunica vaginalis the patient will complain of a good deal of pain; he will first feel as if the testicle were squeezed; he will then feel the pain running along the course of the spermatic cord, at the spinous process of the ilium and at the loins, where the spermatic plexus of nerves arise, and lastly at the neck of the bladder in the course of the vas deferens.

The pain from the injection will be greater or less in proportion to the irritability of the patient; and it may generally be observed that the degree of subsequent inflammation is in the inverse ratio of the pain suffered at the time. If little pain is experienced, a considerable degree of inflammation will follow, while on the contrary where much pain is felt it is generally the effect of nervous irritability, and little inflammation follows it. It sometimes happens in constitutions which have a great disposition to inflammation, that the injection will act so violently as to produce suppuration. It is best always to precede any of the operations mentioned by a regular constitutional course as

directed for treatment with a view to absorption, and thus prevent danger of supuration.

When there is danger of this, which you may ascertain by the great pain and redness of the scrotum, make an incision with the lancet into the part, and discharge the contents, and if the opening is not large, the cure will be effected by the adhesive process.

When the fluid has been suffered to remain in the usual time withdraw the instrument, and there will be no occasion for any application to the part. After a few hours have elapsed, inflammation will probably come on.

Let your patient walk about as usual in the course of the day, if he feels but little pain; if much, tell him to lie down, take his dinner that day, and his glass of wine after it, if he has been in the habit of doing so. Should inflammation not come on from your remedies, you must take the part in your hand, and touch it here and there until the patient feels a good deal of pain. Then desire him to take a long walk, and an additional quantity of wine and water.

Spermatic Cord.—Hydrocele of the spermatic cord may be defined as a collection of water which takes place in the tunica vaginalis between the testicle and abdominal ring.

Sometimes the fluid extends above the ring, giving rise to the idea of its being inguinal hernia; but you may judge of the nature of the tumor by its blue and semi-transparent appearance, by its being entirely unattended with pain, and by its not running into the abdomen, like inguinal hernia. The best mode of treating this disease is to make an incision in the tumor, introduce your finger into the sac, so as to ascertain that there is no communication with the abdomen, and then introduce a small quantity of powdered hydrastia to promote a slight internal irritation. Injections, in this situation, would be attended with difficulty and danger; and in the above manner you may readily effect a cure.

HÆMATOCELE

Is the name given to a collection of blood in the tunica vaginalis. It is generally traumatic, the result of a blow or wound.

Symptoms.—The tunica vaginalis becomes gradually distended, the testicle is compressed, and, if the disease persists it is very apt to waste. If the hæmatocele has lasted for a considerable time, the fibrine of the blood may be deposited in layers on the surface of the tunica vaginalis, so that it resembles the sac of an aneurism.

Treatment.—When the case is recent, rest, pressure, and discutient ointment should be tried. If these means fail, the tumor may be tapped, or a wire seton passed through it. As a last resource, it must be laid open, the clots turned out, and the cavity allowed to granulate.

VARICOCELE

Is the name given to the swelling which is formed by a varicose state of the veins of the spermatic cord. It is caused by anything which retards the venous circulation, *e. g.*, debility, constipation, etc. The left side is more often affected than the right, partly because the veins of the left side are longer than those of the right, and partly because they are subject to the pressure of the distended colon.

Symptoms.—A swelling is felt which has aptly been compared to worms in a bag. It is regularly pyramidal, its base resting on the testis, and its apex pointing to the external abdominal ring. It subsides to a great extent when the patient lies down, but soon returns when he stands up. It is accompanied by a sensation of weight and dragging pain in the back and loins. These feelings are aggravated when the patient takes active exercise. After it has existed for some time it is apt to cause atrophy of the testicle.

Treatment.—The disease may be palliated by wearing a suspensory bandage and bathing the parts frequently with cold water. At the same time the general health should be improved by tonic medicines.

The radical cure of varicocele is effected by obliterating the veins, on the same principle that we treat varix of the lower extremity.

Our object is to compress the coats of the veins, so as to excite adhesive inflammation. If the compressing force is continued the coats ulcerate, and are divided at the point of pressure. A great many methods are practiced, but the principle is the same in all. Some pass a hare-lip pin underneath the veins, and then twist a thick silk over it in the form of a figure 8.

Others put a noose of silver wire round them by means of a needle, which enters the scrotum and emerges at the same point, and then twist it so as to compress the veins. A few turns are given to the wire every day, and thus it soon cuts its way out. Some tie the veins in two places, and divide them subcutaneously between the ligatures. But this seems to be both unnecessary and hazardous.

Another plan is to make a natural suspensory bandage of the scrotum by cutting off a portion and sewing the edges of the wound together. Considerable judgment is required to decide how much of the scrotal tissue should be removed, as the latter is apt to retract, leaving the testicles entirely exposed. Before undertaking any of these operations the spermatic cord should be carefully held aside by an assistant. It may be easily distinguished by its hard, even feeling, like whip-cord.

ACUTE INFLAMMATION OF THE TESTIS.

ORCHITIS.

The testicle is liable to both acute and chronic inflammation. The acute variety is most often seen as an accompaniment of gonorrhœa, but it may also result from blows, or it may arise in the course of small-pox or mumps.

Symptoms.—There is pain with a dragging sensation in the cord, heat, swelling, redness, exquisite tenderness; pain in the back, loins and perinæum. There is great constitutional disturbance, with nausea and vomiting. When the attack is connected with gonorrhœa, the inflammation extends along the vas deferens; and then it would appear in the epididymis, which is chiefly affected.

The discharge from the urethra generally ceases while the inflammation in the testis is at its height. This seems to be due to counter-irritation and not to metastasis.

Treatment.—Perfect rest in bed must be enjoined, and the testis raised on a small pillow. Fomentations, plain or medicated, should be assiduously applied. If the tunica vaginalis is much distended, the fluid may be evacuated by means of a small trocar. At the same time purgatives and diaphoretics should be given with lactuca to allay pain and procure sleep. When the acute stage has passed, and nothing remains but hardness and swelling, the scrotum should be supported by a suspensory bandage; strapping the testicle evenly and firmly will also be found of the greatest benefit.

BANDAGE FOR SUPPORTING THE SCROTUM.

The scrotum may be supported in various ways. A suspensory bandage, such as those which are sold at the instrument makers, is perhaps the best. But if it is impossible to get one of these, or if the scrotum is so much enlarged that it cannot be contained in one, a very useful substitute may be made with a broad roller and a handkerchief. The roller is passed round the waist and fastened in the centre of the base of the triangle applied to the perinæum behind the scrotum. The corresponding ends are now drawn up, one on each side of the scrotum, and tied to the waistband.

CHRONIC INFLAMMATION OF THE TESTIS

May follow an acute attack, or it may be caused by disease of the urethra, or it may depend upon a syphilitic taint.

Symptoms.—The testicle becomes enlarged and hardened. There is but little pain or tenderness. The whole organ is generally affected equally. There is usually more or less effusion into the tunica vaginalis. One or both testicles may be the seat of the disease. There is a deposit of yellow, cheesy fibrinous matter in and between the tubules.

Treatment.—If there is disease of the urethra we must endeavor to cure it.

and then the inflammation of the testicle will subside by itself. If there is a syphilitic taint, discutient ointment should be rubbed in locally, while we would give a regular alterative course as directed for secondary syphilis, with local stimulating lotion in alternation with the discutient ointment.

STRAPPING THE TESTICLE.

This is generally done in the following manner: First of all, the enlarged testis is separated from the rest of the scrotum and a strip of wash-leather plaster, about an inch in breadth, is rolled around the spermatic cord and vessels so as to form a collar which isolates the testicles. You will then prepare a number of strips of the ordinary adhesive plaster, about half an inch wide and long enough to go once and a half around the affected part. These should be well warmed or dipped in hot water, and then applied to the testicle in the regular order.

The first two or three strips should be laid on vertically from behind forward, and tight enough to exert a slight degree of compression. Then a sufficient number of strips should be placed in the same way from side to side, beginning on the inside, passing round the lowest point of the testis and terminating on the outside. If any intervals are left between these vertical strips they should be covered in a similar manner, after which the plaster should be rolled in a circular or spiral way around the testicle until it has been completely and firmly enveloped. In the course of a few days it will be found that the strapping has become loose, and then it must be removed and fresh plaster applied.

Sometimes the inflamed testicle softens at one point, an abscess forms and bursts or is opened. When this happens the tubular structure of the gland is apt to protrude as a fungus. In such a case pressure should be made by means of a pad, or the fungus should be freely touched with nitric acid.

SCROFULOUS TESTICLE.

The scrofulous habit sometimes manifests itself in the testicle. A slow and chronic inflammation takes place with deposit of tubercular matter in and between the seminiferous tubes. The gland enlarges irregularly, without pain or tenderness, and its outline becomes rough and nodulated. Here and there it softens and breaks down. Abscesses form and open externally, perhaps allowing the structure of the testicle to protrude as a fungus. Such abscesses are apt to burrow in all directions, disorganizing the whole gland and giving rise to an exhausting discharge.

Treatment.—The local disease must be met by rest, support, even pressure and discutient ointments. When abscesses form they must be opened and the resulting sinuses treated by astringent or stimulating lotions.

CYSTIC SARCOCELE.

In all these solid tumors of the testis, whether the enlargement be of a simple, a syphilitic, a scrofulous or a malignant kind, cysts are apt to be developed by the dilatation of the seminiferous tubules. Such cysts may vary greatly in size—usually they are about the size of a marble. When many of them are

present in the tumor it is called by the generic name of *cystic sarcocoele*, but the precise nature of the solid substance in which the cysts are embedded is, after all, the important point for diagnosis.

DISEASES OF THE TESTICLE.

The testicle, like other glandular bodies, is subject to a variety of diseases, some of which are malignant in their nature, others not so. The affections of this part which call for surgical inquiries are, the hydatid testicle, the chirrus, the fungoid, the enlarged, and the irritable testicle.

HYDATIDS OF THE TESTICLE.

Hydatids of the testicle is a disease of no very frequent occurrence, and it affects the young (between the ages of seventeen and thirty) rather than those who are advanced in years. It is confined entirely to the testicle and epididymis, and at the first glance bears much the appearance of hydrocele. It begins at the extremity of the epididymis where it joins the testicle; there is an enlargement of the part which extends through the epididymis toward the vas deferens, and from the epididymis to the body of the testicle. The disease is never attended with pain unless it acquires a very considerable magnitude. The spermatic cord is a little varicose, but not hard, the spermatic veins are not larger than usual. There is very little inflammatory tendency, and the patient can bear the part to be roughly handled without pain.

This disease is entirely local, and unattended either with constitutional symptoms or danger; still, however, the operation of castration is sometimes required on account of the size to which the growth arrives; the patient being unable to conceal the disease is incapable of going into society, and will frequently entreat for a removal of the part. It is not on account of the pain that he suffers, or any apprehensions that the surgeon need entertain, but on account of the inconvenience to which a patient is exposed that the operation is usually performed. I am not aware of any instance in which, after the operation the disease has returned, either in the spermatic cord or in the other testicle.

SCIRRHUS OF THE TESTICLE.

True scirrhus of the testicle is a very rare complaint; it begins in the body of the testicle, with an extremely hard swelling which may enable you to determine the nature of the disease. It feels like a marble body lodged within the scrotum, and it is tuberculated on the surface. It sometimes begins in the centre of the testicle, and gradually extends until the whole is involved in the disease. The epididymis next becomes the seat of the disease, that portion being first attacked which communicates with the vas deferens. The spermatic cord be-

comes enlarged, and tubercles of various sizes form upon it. After the spermatic cord has become enlarged, a hard tumor forms beneath the emulgent artery, which may be felt through the abdominal parietes. In true scirrhus the testicle does not become enlarged to any considerable size. After the swelling in the loins, the thighs become enlarged and œdematous on the side of the disease, which arises from the obstruction to absorption, and the pressure on the veins may also have some influence in producing this effect.

Diagnosis.—In hydatids of the testicle the health is not affected, but in cancer the countenance undergoes a remarkable change; it is yellow, and sunk, a fixed color terminates abruptly in the cheek; the disease is also attended with excruciating pain, which becomes more intolerable as the disease advances. It is generally from a year and a half to two years before the disease destroys the patient.

Treatment.—The same as directed for cancer of other parts of the system.

FUNGOID DISEASE OF THE TESTICLE.

This disease is much more common than the last; it begins like the true scirrhus, in the body of the testicle, but unlike that disease, it almost immediately affects the whole body of the testicle at its first commencement. In a very short time the epididymis becomes affected, next the spermatic cord, and in the course of a very few weeks a tumor forms in the loins. The disease is at first unattended with pain, but when the spermatic cord and the tumor in the loins become of great magnitude, the patient suffers considerably. The fungoid swelling of the testicle sometimes increases to the weight of several pounds, and usually occurs between the ages of seventeen and thirty-five. The appearance of the surface is somewhat livid; the spermatic cord is loaded with blood, and in some parts you may feel a fluctuation as if there was a cyst within it; it also becomes covered with tubercles of a considerable size. The tumor has a soft pulpy feel, readily yielding to pressure, and on the first examination you might suppose the disease to be hydrocele. It may be distinguished from hydrocele in the following manner: In the first place it is flattened on the forepart, whereas in hydrocele it is pyriform; if you squeeze any part of the fungoid tumor the patient will complain of the pain arising from the compression of the testicle, which he will not do in hydrocele, unless you squeeze the posterior part of it; the fungoid tumor rather yields to the pressure of the finger than fluctuates from one side to the other, as in hydrocele, and lastly, the great weight of the swelling when you lift up the sides and the livid appearance of the scrotum mark the malignant character of this disease.

The true fungoid disease is not confined to the testicle, but affects other parts of the body in a great variety of situations. If you take blood from a person under this disease you will find it so attenuated that it will hardly coagulate, and if you have an opportunity of seeing the adhesive process you will find the inflammation scarcely supporting the blood vessels; what few vessels are pushed

through the part assume the appearance of fungus. The scirrhus and fungoid tumors are the only malignant diseases to which the testicle is subject.

By the exhibition of alterative medicines, so as to improve the general health, you may probably prevent the disposition to the formation of the disease, but when the scirrhus and fungoid diseases are once engendered in the constitution nothing but the most active treatment will counteract them. Knowing this, do not go over the same treatment which experience has shown to be ineffectual, but try amidst the great variety of new powers with which the discoveries of modern chemists have furnished you, whether there are not some more worthy of your attention.

SIMPLE CHRONIC ENLARGEMENT OF TESTICLE.

This is merely a chronic enlargement, occurring in constitutions which have been injured by intemperance and over-excitement, as from the use of mercury or the presence of a stricture; the tumor is hard, and although very often mistaken for scirrhus or the true fungoid testicle, it is extremely easy of cure.

This disease is of a similar nature to that which attacks the eye, which has been called iritis, and requires the same mode of treatment.

Unless medical treatment is adopted, the disease will increase until the testicle is destroyed; but by judicious application of your remedies, you may readily overcome it. You must strictly enjoin the patient to keep the recumbent posture; apply warm poultices to the part occasionally and discutient ointment, and direct him to take one teaspoonful of syr. stillingia comp. with iodide potass. three times a day.

If he does this the enlargement of the testicle will subside in the course of a few weeks.

Do not on any account attempt to introduce a bougie, even though the state of the urethra should be the source of enlargement. The introduction of a bougie at first would only add to the irritability of the urethra. Wait till you have altered the constitution by the means I have pointed out, and the swelling of the testicle is considerably reduced, and then, but not until then, you may resort to the use of the bougie with advantage.

Although the disease upon which we are now speaking may be effectually cured by medicine, there is a chronic enlargement of the testicle which requires the operation of castration, as large abscesses are sometimes produced by it, which occasion great pain, and the patient becomes anxious for its removal.

Fungoid granulations spring from the surface of these abscesses; they are not of the true malignant fungoid character, but they resemble the granulations which spring through the dura mater, in consequence of injury to the brain. Even in this case, however, the granulations may be cut off from the surface, and the integuments brought together, so as frequently to render the removal of the testicle unnecessary. I have seen a case cured by sprinkling powdered sulphate of zinc on the part.

IRRITABLE TESTICLE.

The irritable testicle is a very formidable disease, and generally resists all means which may be employed to subdue it. The part is so extremely tender that the patient cannot bear to walk, as pressure of the testicle gives him excruciating pain.

The moment you touch the part the patient shrinks from you and complains of dreadful pain, which lasts for some hours. The pain passes up the spermatic cord to the loins, entering along the spermatic nerves of the thigh.

Treatment.—The suffering of irritable testicle is almost unbearable, and the worst of all is the usual run of treatment fails to give even temporary relief. The following in my hands has proved eminently successful, and can be relied upon. Put your patient on a thorough constitutional treatment.

℞—Syr. Stillingia Comp. ʒ iv.
 Fld Ext Papaver ʒ j.
 Iodide Potass. ʒ ij.

Dose.—One teaspoonful three times a day.

℞—Fld Ext. Asclepias } aa.
 “ “ Serpentaria } ʒ ss.
 “ “ Cimicifuga } ʒ j.

Dose.—Forty drops three times a day. Locally :

℞—Tr. Aconite, fol }
 “ Hyosciamus } aa.
 “ Arnica }
 “ Belladonna } ʒ j.
 Chloroform

Apply over the testicle twice a day. Support with suspensory bandage.

If the pain is severe at night, a poultice of lobelia herb and hops combined will give relief.

To the above treatment the very worst cases will yield in a few weeks.

SPERMATORRHŒA.

The term spermatorrhœa usually includes all involuntary discharges of semen, occurring generally in the day time, and without previous erection. But more careful observation has shown that true spermatic fluxes (the secreting fluid containing spermatozoids) are exceedingly rare. In the majority of cases the so-called seminal losses are composed of prostatic mucous fluid, the emission of which may be accompanied by voluptuous sensations.

In patients affected in this manner a moderate action of the bulbo-cavernosis muscle will suffice to produce an intermittent discharge of mucous and prostatic fluid. In the majority of patients the spermatorrhœa is merely a consequence of pollutions, and its occurrence is attended with an incomplete erection.

As a rule involuntary seminal losses occur at night, during a state of more or less complete erection, and are then known as pollutions. The most frequent

causes are, masturbation during childhood and youth (especially in patients who are naturally very excitable), erotic thoughts (obscene books or pictures), and over-excitement of the genital system from excessive venery.

In many cases the affection is due to anatomical lesions and functional disorders. In habitual constipation the evacuation of hard, fæcal matter is often accompanied by a loss of semen (recognizable with the microscope), leaving after it a disagreeable sensation in the urethra, which often lasts more than an hour.

Diseases of the rectum (hemorrhoids, abundant oxyura, as I have observed in two cases), diseases of the bladder, of the seminal vesicles, of the prostate, of the urethra, and of the glands, may also give rise to pollutions.

Finally, certain irritative conditions of the cord are accompanied by frequent pollutions.

Although we do not agree with some writers, who regard all patients suffering from pollutions as threatened by insanity, amaurosis, impotence, and ataxia, we nevertheless recognize the fact that frequent seminal losses, continued for several years, are not without danger as denoting a diminution in the energy of the spinal nervous system.

Infrequent pollutions which have no effect upon the vital energies, and upon nutrition, may disappear spontaneously upon regulating coitus and the habits of life. But seminal losses, which by their frequency, rapidly debilitate the organism during youth and continue for years, may finally exhaust the nervous system, affect its power of resistance to external influences, lead to hypochondria and to marked intellectual weakness and very frequently act as the cause of spinal affections. The pollutions of the stage of irritation in ataxia are usually accompanied by other characteristic signs, such as frequent neuralgia (especially sciatic), temporary diplopia, weakness of the efforts of coitus, and increased electrical excitability.

Treatment.—In the treatment of pollutions we must especially endeavor to remove their cause.

When due to hemorrhoids habitual we should prescribe injections of cold water or vinegar, or a weak solution of sulphate of zinc. No less importance must be attached to the regulation of the habits of life of the patient. Physical exercise and a moderate amount of mental labor are indicated in order to maintain the vigor of the body, and to prevent erotic dreams. The diet should be nutritious to the exclusion of fatty spiced food and of stimulating drinks. At night the patient should merely take a little milk, and should drink very sparingly, since fullness of the bladder is apt to produce erections. The patient should sleep upon a hard mattress and pillow, be lightly covered; he should not sleep too long, and must avoid sleeping during the day. Control erections with a cold hip-bath; salt water is best, just before retiring, with fifteen drops fld. ext. lupulin in sugar and water. This merely holds the irritation in abeyance. Give:

R—Acid Phos. Dil.....	§ j.
Glycerine.....	§ iv.
Tr. Cinchona.....	§ iil.

Dose.—One teaspoonful three times a day, say one hour before meals.

R—Fld. Ext. Hydrastis, Can.....	} aa.
“ “ Hanthoxylum	
“ “ Helonias Dio.....	
Tr. Nux Vomica	§ ss.

Dose.—Twenty drops three times a day one hour after meals.

R—Fld. Ext. Lupulin.....	} aa.
“ “ Cimicifuga.....	
	§ j.

Dose.—Thirty drops just before retiring. We may alternate with.

R—Acid Phos Dil	§ ii.
Tr. Cinchona Comp	§ v.
“ Nux Vomica.....	§ ss.
Glycerine	§ viii.

Dose.—One teaspoonful in a wineglass of water.

R—Fld. Ext. Hanthoxylum.....	} aa.
“ “ Cubeba (Al.)	
Erythoxilin Coca	
Zingiber	§ j.

Dose.—Twenty drops half hour after meals.

At night:

R—Ext. Cannabis Indica.....	grs. ss.
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On retiring, Salt water bath with friction to spine, nates and pubes, will be of great advantage; electricity will act well, and should be tried. Under a course of this kind improvement will be rapid and permanent.

Avoid all exciting causes and continue this line of treatment, alternating and changing to suit the peculiar symptoms of each case.

IMPOTENCE.

The inability to perform coitus with sufficient frequency or energy is commonly termed impotence. The physiological capacity for indulging in sexual intercourse varies greatly according to the individual, in the same manner that hunger, thirst, sleep and muscular power vary. It depends upon the condition of the physical powers, the manner of life, and the force of habit.

Impotence, especially in large cities, is very often due to long continued onanism, or to excess in venery. In much rarer instances it is symptomatic of a central affection.

When masturbation has not been practiced too long and too often, sexual impotence may be usually attributed to the absence of desire for natural coitus.

Young men who are warned in time of the danger of their evil habits may recover their natural desire by frequenting female society, and may be completely restored by an early marriage. We may also hope for a favorable recovery when, after practicing masturbation to a moderate extent, the young men who are otherwise healthy, only have incomplete erections when they attempt intercourse, and are therefore discouraged from further attempts. In these cases we may restore the physical and mental tone of the patient by appropriate hydrotherapeutic and electrical treatment. The most serious cases

are those in which the patients have practiced masturbation from childhood or puberty, in whom the physical and moral tone is very low, and who only have infrequent and incomplete erections. The prognosis is then grave as regards the restoration of the genital functions, but is not absolutely unfavorable in young patients. In the impotence which follows sexual excesses and obstinate pollutions, the sexual desire is often more intense than in the normal condition, but the erections are incomplete and the ejaculation of semen is almost always precipitate. In old cases the skin of the glans and scrotum is pale, flabby, often traversed by varicose dilatations, cold and not sensitive to touch; the penis is flaccid and retracted, and the testicles are soft and do not present their normal sensibility to pressure.

After these patients have attained a certain age they are rarely susceptible of improvement. Finally, impotence may be symptomatic of diseases of the spinal cord. In some cases weakness of the genital functions is the first indication of incipient ataxia. Rapid diminution of the virile power in a patient in the prime of life should awaken serious apprehensions in the mind of the physician. It should not be regarded as unimportant, but you should place your patient under an active treatment, constitutional and local, with a view of building up the vital powers.

In many cases long continued pollutions, which were at first accompanied by increase of sexual desire, finally terminate in impotence and in the development of spinal symptoms.

The irritative symptoms which frequently appear after exposure or extreme fatigue are often accompanied by the early abolition of the virile power. The latter is manifested by premature ejaculation, incomplete erections, or by temporary intermittent impotence, and often terminates in suppression of voluptuous sensations, and complete extinction of the sexual functions. From the preceding remarks it is evidently of the highest importance that we determine whether the impotence is due to sexual excesses, to moral depression, or whether it constitutes the initial symptom of an affection of the spinal cord. The physician is often consulted by this class of patients with regard to the advisability of marriage. In patients belonging to the first category, marriage with a person of calm temperament may be permitted after the impotence has undergone improvement. Matrimony should be strenuously opposed, however, in those patients who present spinal symptoms.

Treatment.—The first indication to be met is to increase the vital powers. You should endeavor to have your patient keep regular hours in eating, avoid alcoholic stimulants, the use of tobacco, opium, etc., and direct a good nutritious diet, salt water bathing, plenty of out door exercise, freedom from mental worry, or depression of any kind, then direct the following medicines three times a day before meals :

℞ —Fld. Ext. Erythoxylum Coca	℥ iv.
Acid. Phos. Dil.....	℥ ij.
Syr Simplex.....	℥ vi.
Holland Gin.....	℥ iv.

Dose.—One teaspoonful before meals.

R.—Fld. Ext. Uva Ursi.....	} aa.
“ “ Myrica Cer.....	
“ “ Cubeba (Alcoholic).....	
“ “ Triticum Rep.....	
	§ ss.

Dose.—Thirty drops after meals with papaver, or lupulin at night.

Inject urethra night and morning with :

R.—Sulph. Zinc.....	grs. xvi.
Acqua.....	§ viii.

PRIAPISM.

This is an unnatural or long continued erection of the penis. It may last from a few hours to days, and is attended with more or less uneasiness and irritation of the member.

Causes.—It may be due to injury of the spinal cord, to excessive venery, to long continued use of alcoholic liquors, to stimulating diuretics—as cantharides ; sometimes produced by blisters over the lumbar region. There is a species of paralysis where this is characteristic. I have one case on record where a man was paralyzed below the hips. The penis was erected and sexual intercourse was carried on for several hours without an emission or subsidence of erection.

Treatment.—Warm baths, warm fomentations over the pubes, friction over the spine, and if due to paralysis, then the treatment directed under that head. If due to an injury, irritation or pressure, we should remove the cause and the priapism will usually disappear.

The best agents we have are the cimicifuga, papaver, lupulus, humulus, camphor, and active purgatives ; avoid all exciting causes.

FEMALES.

ADHESION OF LABIA.

This may be partial or complete ; where only partial, it causes no great inconvenience for some time, but as it prevents the escape of the secretion, it should receive attention. When complete adhesion exists it will block the natural passage of urine, and should be attended to at once.

The operation is simple. When only partial, separate the parts as much as possible with the thumb and forefinger ; introduce a probe-pointed bistoury and divide the membrane that unites the parts. The same rule is to be adopted in complete adhesion, though we shall have to use a sharp-pointed bistoury at the point of insertion, and in order to guard against wounding the parts, then substitute the probe-pointed. After the parts are separated, apply soft lint saturated with glycerine and camphor and bathe often with Castile soap and water.

IRRITATION AND INFLAMMATION OF THE LABIA IN CHILDREN.

Female children, from infancy to puberty, are liable to an irritation of the lips of the organs of generation, which often terminates in inflammation and gives much trouble if not promptly arrested.

Symptoms.—A burning, stinging sensation, extreme redness of the parts with a white discharge. Passing the urine increases the soreness and smarting; the child cries and is apt to retain the urine.

Treatment.—Bathe the parts well with castile soap and water three times a day; wipe with a soft cloth, and sprinkle powdered bayberry on the parts, or a lotion of sulphate of zinc, four grains to an ounce of rose water; this should be applied after each bathing.

INFANTILE LEUCORRHŒA, OR WHITES.

Often met with in infancy. The female is subject to leucorrhœal discharges from infancy to old age, but I shall only speak of the infantile type here.

It is attended with a discharge from the vagina of a yellowish matter, which often assumes a greenish hue, is generally very acrid, and causes irritation of the skin where it comes in contact.

Causes.—Sometimes caused from worms, and when such is the case, symptoms of worms will be manifest. It is also met with in children of scrofulous parents, or the offspring of those who have suffered from syphilis or venereal disease.

Treatment.—If due to irritation of worms, our best anthelmintics should be resorted to:

R—Oleum Terebinth	aa.
“ Pumpkin Seed	ss.
“ Chenopodium	ss.

Dose.—Five to fifteen drops on sugar, night and morning. After the third day a saline purgative.

When due to scrofulous or hereditary taint, then alteratives and tonics with strict attention to cleanliness. Leucorrhœa is hereditary and should be treated on general principles, according to cause. A local wash of

R—Permanganate Potass	grs. viii.
Aqua Pura.	ss. viii.

Apply to the parts twice a day. This will relieve irritation.

DISEASES OF THE LABIA.

The labia are liable to inflammation from acrid discharges, syphilis, gonorrhœa, etc.

Symptoms.—Where there is much inflammation it is attended with pain, throbbing and redness.

The looseness and vascularity of the parts favor the progress of inflamma-

tion, which is generally rapid, terminating in suppuration, and may give rise to an indolent form of ulcer.

Treatment.—The movement of the parts causes pain and keeps up the irritation, therefore one of the first indications is perfect rest in the recumbent position, and apply poultices of slippery elm or milk and bread.

The bowels should be kept open by injections, or a mild purgative. To relieve the pain:

R.—Fld. Ext. Cypripedium.....	aa.
“ “ Papaver	
“ “ Asclepias.....	ss.

Dose.—Thirty drops once in three hours.

Where there is a tendency to suppuration, the abscess should be opened on the inside of the labia and the pus pressed out. When the parts do not heal readily, inject the abscess with a solution of common soda and apply a plaster of mutton suet. These abscesses sometimes refuse to heal, and a fistula is formed, keeping up constant irritation.

PRURITIS, OR ITCHING OF THE VULVA.

This is very troublesome, and the result of inflammation and other disorders of the vulva, or external covering of the genitive organ. It may result from pregnancy, diseases of the womb, bladder and rectum, and sometimes from leucorrhœa, or whites. It is often a symptom of seat worms and diseases of the roots of the hair on the external organs.

Symptoms.—An intolerable itching of the parts accompanied with irritation, and extending into the vagina and passage from the bladder. When the patient gets warm the itching is increased, especially on getting warm in bed or walking. There are generally white pimples formed about the parts, rubbing or scratching breaks them, and an acrid watery discharge from them causes inflammation of the parts. Occasionally the irritation is so great that the venereal passions are excited beyond restraint amounting to nymphomania. If the patient is not relieved the health soon gives way, loss of appetite, melancholy, etc.

Treatment.—This depends entirely upon the cause. First remove that and the effect or symptoms go with it. I have found a free use of Castile soap and water, twice a day, with an application of a solution of:

R.—Sulph. Zinc.....	grs. xx.
“ Hydrastia.....	grs. x.
Aqua Pura.....	℥ vii.

Saturate a piece of lint and keep constantly applied, or

R.—Borax.....	℥ ss.
Morphia.....	grs. ii.
Aqua.....	℥ iv.

Use the same as above.

If the mucous membrane is affected to much extent glycerine with a trace of carbolic acid, lightly applied, will give relief. Avoid stimulating food and drink and keep the parts strictly clean.

EXCRESCENCES, OR WARTS

Sometimes make their appearance about the orifice of the urethra, or canal leading from the bladder. They are very painful and should be removed at once. They result from acrid discharges and lack of cleanliness.

Treatment.—Apply muriatic tincture of iron to the growth three times a day. Apply with a feather or camel-hair pencil. In a few days the growth will be destroyed, drop off and need no further attention. If excoriation remains dress with oxide zinc ointment.

DISEASES OF THE CLITORIS.

The clitoris is liable to ulceration, inflammation and enlargement. The symptoms of ulceration is pain attended with discharge of pus. This will generally yield to glycerine and carbolic acid.

When of a malignant type prompt means will be required to arrest it. Inflammation yields to a free application of cold water to the parts. Enlargement of the clitoris, if it appears after the age of puberty, is best treated with ointment of iodoform, twenty grains of iodoform to an ounce of lard; apply twice a day.

IMPERFORATED HYMEN.

The hymen is a membrane, crescent-shaped, that closes the external orifice of the vagina. Naturally there is an opening in it that allows the secretions to escape. Occasionally cases are met with where it entirely closes the vagina; this is seldom discovered until the age of puberty, when the menses make their appearance and fill up the vagina, causing pain and swelling, with constitutional disturbances.

Treatment—Is simple. The hymen must be divided and the vagina syringed with tepid water, the recumbent position maintained for a few days, until the organs have resumed their natural position.

VAGINITIS, OR INFLAMMATION OF THE VAGINA.

This may be confined to the mucous membrane, or it may extend to the surrounding tissues.

Symptoms.—A feeling of fullness, sense of heat and pain in the vagina, which on examination will be found of a deep red color, swollen condition of the lining membrane.

No discharge at first, but after a few days there is a thin secretion which changes to a yellowish or green color. It is difficult to detect it from gonor-

rhœa; in fact, there is no way of detecting the difference, except with the microscope.

Causes.—Vaginitis may result from cold, excessive sexual intercourse, too frequent child-bearing, gonorrhœal virus, etc.

Treatment.—Injection of cold water, with warm hip bath; keep the bowels regular with a mild purgative. If the discharge is excessive, dissolve sulphate of zinc, six grains to one ounce of water, and inject two or three ounces up the vagina two or three times a day. Should there be scalding of the urine, take:

R—Fld. Ext. Eupatorium Purp.....	℥ i.
" " Papaver.....	℥ ss.
" " Buchu.....	℥ j.

Dose.—Forty to sixty drops once in four hours. After the discharge has ceased inject the vagina freely with myrica lotion.

R—Fld. Ext. Myrica Cer.....	℥ j.
Aqua Pura.....	℥ xvi.

LEUCORRHŒA, OR WHITES.

After the fifteenth year this is one of the most frequent complaints of females. There are two distinct forms of leucorrhœa, requiring quite a different line of treatment. In vaginal leucorrhœa the discharge is entirely from the vagina; it consists of acrid mucus, with a membranous substance. The discharge irritates and causes an intolerable itching.

The discharge varies in color from white to a deep green, yellow or brown. In this type of the disease the uterus or womb is not involved, and the disease, if properly treated, will soon disappear.

CERVICAL LEUCORRHŒA,

Or that which proceeds from the uterus, is a clear, transparent mucus. When it comes in contact with the secretions of the vagina it resembles curdled milk, sometimes mixed with pus or blood from the os uterus, resembling menstrual secretion, and frequently patients will say their menses are on nearly all the time, when in truth this is the cause.

Frequently the discharge is so great as to undermine the constitution, keeping up a continual drain upon the system. It also causes abrasion of the os and neck of the uterus, causing it to present a red, inflamed appearance.

If a patient of this class falls into the hands of some inexperienced caustic vender it is pronounced ulceration, and the patient is tortured until ulceration is produced, and the disease assumes quite a formidable shape. If neglected it may lead to ulceration, not only of the womb, but of the vagina.

Symptoms.—The symptoms of both varieties are the same—sickness of the stomach, dyspepsia, pain in the back and left side of the chest, extending into the groins and down the thighs. Leucorrhœal discharges, as a rule, have a very slight fetid odor; never very offensive, except when connected with abscess

or cancer. This discharge is contagious, producing a species of ballanitis, a discharge from the penis closely resembling gonorrhœa.

A case once came under my care where the husband was on the point of separating from his wife, believing she had communicated venereal disease. There is really but little difference in this and gonorrhœa.

Cervical leucorrhœa sometimes takes the place of, or interferes with, menstruation, and both vaginal and cervical produce sterility, the acrid secretion destroying the spermatozæ of the male.

Causes.—Pregnancy, excessive sexual intercourse, masturbation, decline of life, depression of spirits, lifting, fatigue, long walks, cold, etc. A common cause is nursing too long to prevent conception. Those of a scrofulous taint are subject to it at all times, from infancy to old age. It also appears to be hereditary. Children are often thus affected, where the mother has suffered with it during gestation.

Treatment.—Here again the treatment depends entirely upon the cause, which should first be removed; then build up the general health.

The following prescription is almost invaluable in the vaginal type:

R—Fld. Ext. Helonias Dioica.....	} aa.
“ “ Hydrastis Cana	
“ “ Aristolochia Serp	
“ “ Caulophyllum Thalac.....	
“ “ Populus Trem.....	} ss.
Holland Gin.....	
	O. ij.

Dose.—One tablespoonful three times a day before meals.

After meals:

R—Tr. Cinchona Comp.....	} aa.
Nitro-Muriatic Acid Dil.....	
	} ss j.

Dose.—Forty drops one hour after meals.

Keep the bowels regular with a mild purgative. Use an injection of green tea or cold water. The practice of using strong astringent injections is injurious, to say the least. If used at all, they should be applied with a proper syringe.

R—Fld. Ext. Myrica Cer.....	} aa.
“ “ Hammamelis Vir	
	} ss j.

Add a teaspoonful to a pint of water; use as a wash night and morning. Next to this is sulph. of zinc, six grains to the ounce of water, or two drachms to a pint of water; use half a gill night and morning. Where there is induration or callous condition of the os uterus, iodide of potass., one drachm to one pint of water, used as a wash, one-half night and morning.

For vaginal leucorrhœa, the injections should be of an alkaline nature, from the predominance of the acid principle in the discharge. In cervical leucorrhœa acids as injections are best. Leucorrhœa if allowed to continue for a length of time will cause relaxation of the vagina, and consequently prolapsus or falling of the womb. In those cases cold water with myrica lotion will have a wonderful influence in restoring the parts.

If the vaginal secretion does not yield to the treatment here laid down, a good plan will be to give an alterative—build up the general system.

In connection with this treatment, exercise in the open air, with a good stimulating diet. Continue the use of the cold water and myrica, and an occasional hip bath. Sexual intercourse must be prohibited, and only moderately indulged after the disease is controlled, or the same condition may be induced.

AMENORRHŒA.

This is one of the most common forms of menstrual disease which, though sometimes borne without any material inconvenience, seldom fails ultimately to derange the general health, and unless remedied often leads to the most distressing and dangerous consequences.

Symptoms.—The usual symptoms which arise from this affection are languor and debility; a pale and sickly expression of countenance, swelling of the ankles, various nervous affections, such as paroxysms of palpitations of the heart, dyspnœa; flatulent and spasmodic pains in the bowels, loss of appetite and leucorrhœa. In subjects predisposed to phthisis pulmonalis, or to some other local or general disease, protracted suppression of the catamenial evacuations is always particularly dangerous from its strong tendency to develop such affections. When the menses are suddenly suppressed while they are flowing, or when the remote cause of the obstruction is applied immediately before the impending appearance of the evacuation, the consequences are much more violent and sudden. In such cases the most alarming symptoms sometimes almost immediately follow the suppression of the discharge. In some cases paroxysms of violent spasmodic pains occur in the bowels and stomach, attended occasionally with severe retching. In other instances, strong determinations of blood to the brain give rise to raving delirium, hysteria, mania, convulsions, or a temporary loss of sensation and voluntary motion. Sometimes extremely alarming palpitations of the heart, with great difficulty of breathing, occur.

Causes.—The *exciting* causes of amenorrhœa are exceedingly various. Everything which is capable of deranging the general health has a tendency to excite irregularities or suppression of the catamenial discharge. Organic and inflammatory visceral affections—more especially pulmonary consumption; chronic hepatitis and gastro-intestinal inflammation or irritation are rarely unaccompanied by menstrual irregularities, and often by a total and obstinate suppression of this evacuation. Mental emotions, particularly protracted grief and despondency, and sudden terror or violent anger, have a powerful tendency to arrest the catamenial discharge. Metastasis of rheumatism, of erysipelas, and of chronic cutaneous affections; habitual hemorrhoidal discharges, as well as other varieties of hemorrhage leucorrhœa, and deficient and unwholesome nourishment, may also give rise to this affection. But by far the most common cause of amenorrhœa is *cold* operating on the system, either during the interval of the menstrual periods or immediately before the menses are about to appear, or finally during the actual flow of the evacuation. When the exciting cause acts during the interval of the catamenial periods, the menses will either not make their appearance at the next period, or they will perhaps begin to flow

sparingly for a few hours and then cease. In general, no material inconvenience is felt from the absence of the evacuation, and, in some instances, it returns spontaneously at the succeeding period. Occasionally, however, considerable uneasiness in the pelvic region, pains in the loins, irregular determinations of blood to the head or chest, and in nervous subjects various hysterical symptoms are the immediate consequences of the suppression. But although the system frequently bears the suppression of this evacuation without any materially unfavorable consequences during the first six or eight weeks, more or less derangement of the general health invariably ensues, if the menses fail to make their appearance after the second or third period.

Treatment.—When one or more of the violent affections mentioned succeed the sudden suppression of the menses, the first object must be to allay the alarming and painful symptoms without any immediate attention to the restoration of the evacuation. The attempt, indeed, to reinstate the catamenial secretion, at the period when it becomes arrested, is almost always abortive; yet the treatment which may be proper to palliate or remove the present symptoms will occasionally have the effect of bringing back the suppressed evacuation.

In young and plethoric subjects, or where there is great determination of blood to the head or lungs, active treatment should be promptly resorted to.

First, an emetic of comp. powder of lobelia, follow with an alcoholic vapor bath, an active cathartic and an occasional dose of asclepias, and serpentaria to get up a termination to the surface. If the pain is intense then :

\mathcal{R} —Fld. Ext. Cypripedium.....	aa.
“ “ Lobelia.....	3 j.
Tr. Capsicum	3 ss.

Dose.—Thirty drops once in three hours.

Warm applications over the uterus. When the pain is cramping and spasmodic, give :

\mathcal{R} —Fld. Ext. Viburnum Op.....	3 j.
“ “ Papaver.....	3 ss.

Dose.—Forty to sixty drops once in two hours.

After the urgent symptoms have subsided, if the menses do not return then our treatment should be directed to building up the general health, removing the cause, and preparing the system for a natural return at next regular time.

In the anæmic we should adopt the treatment directed under the head of anæmia; in addition some uterine stimulant, as :

\mathcal{R} —Fld. Ext. Cimicifuga...	aa.
“ “ Caulophyllum.....	3 ss.
“ “ Polygonum Pun.....	
“ “ Baptisia.....	

Dose.—Thirty to forty drops three times a day for a week before the expected return.

When we have absence of menstruation from a want of tone in the uterus, the following will be found excellent :

R —Fld. Ext. Helomas Dioica	aa.
“ “ Populus Trem	3 ss.
“ “ Hydrastes Can	3 ii.
“ “ Caulophyllum Thac	3 ss.
“ “ Serpentina	3 ii.

Dose.—Thirty to sixty drops before each meal.

At night give twenty drops fluid extract scutellaria to procure sleep and quiet the nervous system. Among the best of the eumenagogue preparations is :

R —Betin	aa.
Ergotine	—
Ferr. Sulph	3 i.
Aloes Soc	3 ii.
Podophyllum	grs. xx.

Soft ext. of eupatorium perf. to make pill mass. Divide into three grain pills and give one three times a day.

When we have a plethoric condition coupled with absence of menstruation, we should resort to active cathartics, warm foot baths at night, diaphoretics and alteratives generally. Our materia medica abounds in uterine stimulants, and you need not be at a loss for remedies to meet the indications when there is a deficient vitality in that organ. Electricity, plenty of fresh air, exercise.

DYSMENORRHŒA.

In this affection the appearance of the flow is attended with severe pain and the discharge generally scanty, yet sometimes the quantity is sufficient ; but the discharge may contain fibrous shreds, or a small mass ; the interior of the uterus is thrown off in a complete form, called a false conception.

Symptoms.—A few days before the period, when the discharge appears, the patient will complain of pain in the womb, back, loins, cramps and bearing down pains, closely resembling those of natural labor.

When the discharge comes, the pain is more severe; the agony is so terrible and unbearable sometimes as to induce great prostration.

Causes.—The most common is, perhaps, the rheumatic or gouty diathesis, hysteria and neuralgia, with an inflammatory action of the womb, rigid condition of the mouth of the uterus, or an irritable condition of those important appendages, the ovaries. The neck of the womb may be so small as not to permit the escape of the fluid.

Treatment.—If there is a disposition to plethora, and a determination of blood to the brain, give your patient :

R —Syr. Stillingia Comp	3 vi.
Fld. Ext. Viburnum Op	aa.
“ “ Aselepias Tub	3 j.
Iodide Potass	3 ss.

Dose.—One teaspoonful three times a day.

This prescription will also prove the best and most positive when there is a rigid condition of the mouth of the uterus. Anæmia, sickness of the stomach, disgust can be remedied with small doses of pulsatilla and senecio, as :

R—Fld. Ext. Pulsatilla	aa.
“ “ Senecio.....	3 ss.

Dose.—Thirty or forty drops three times a day.

When the womb or ovaries are congested, with febrile symptoms :

R—Fld. Ext. Asclepias.....	aa.
“ “ Serpentaria.....	3 ss.
“ “ Cypripedium.....	3 ss.

Dose.—Thirty drops once in three hours till the fever is checked and you produce diaphoresis, then give :

R—Fld. Ext. Lactuca	aa.
Spt. Lavender Comp.....	3 j.

Dose.—Thirty drops every two hours to control the pain. A strong decoction of burnt coffee acts well if there be sharp painful cramps in the womb and bowels with great nervous excitement. Make the decoction strong and black, and sweeten with sugar. Give half a tumblerful every ten or fifteen minutes.

Where the discharge is sufficient in quantity but passes slow, and with great pain, give :

R—Fld. Ext. Caulophyllum	aa.
“ “ Cypripedium.....	3 ss.
“ “ Cimicifuga.....	3 ss.

Dose.—Forty drops once in three hours. Where the discharge is both painful and scanty, the various uterine tonics and stimulants, as :

R—Fld. Ext. Helonias Dioi.....	aa.
“ “ Senecio Aur.....	3 ss.
“ “ Cimicifuga Rac	3 ss.
Dialyzed Iron.....	

Dose.—Thirty to forty drops once in three hours. If the pain cannot be subdued by ordinary means give a thorough emetic of comp. powder of lobelia, or just enough of the fluid ext. of lobelia to keep the system relaxed. If dysmenorrhœa is the result of some deformity of the neck of the uterus, as contraction, etc., if the contraction is only spasmodic, it can be overcome by relaxants ; but if this contraction be permanent, all that can be done is to relieve the suffering as much as possible by warm hip baths, and use any other powerful relaxing and anti-spasmodic agents that you may think of benefit. Sometimes, in contractions of the neck of the uterus, we may make a radical cure by dilatation, by the means of bougies. In these cases you should begin with the smallest size you can introduce without pain, and gradually increase the size until the largest size will pass readily. I have made radical cures in a great number of cases that had resisted all medicinal treatment that had been tried.

Dilatation succeeded in every case, the patient menstruating after a short time without suffering. In using bougies the greatest care should be exercised, proceeding slow and with caution.

MEMBRANOUS DYSMENORRHŒA.

This form is very often met with where the difficulty attending menstruation is due to the forming of a membrane on the interior of the walls of the womb of a deciduous character. This morbid growth is the result of some inflammatory action.

Treatment.—To prevent this membrane forming, we should make use of an injection into the vagina and retain as long as possible, twice daily.

℞—Iodide Potass..... } grs. xxx.
Aqua Pura } ʒ j.

Use one-half at night and one-half in the morning. You may vary the quantity of the iodide potass. in the mixture, according to indications. You should also give internally the strongest alteratives, as syrup iris versicolor comp. or the iodide potass. in the syrup of stillingia comp. Cimicifuga, helonias, caulophyllum can all be used and alternated with advantage.

MENORRHAGIA.

This disease may arise from the hemorrhagic diathesis, or from some injury, as a blow, a fall, or some other concussion of the uterus. Plethora is another cause; some organic affection of the womb, as cancer, etc.

Treatment.—If the flooding is not very excessive apply a pad over the womb and keep the patient as much as possible in the recumbent position. This will often be sufficient without medication.

When the blood flows on unchecked by this mild treatment, give the oil of erigeron in from ten to fifteen-drop doses, in emulsion or sugar, every three hours. You can aid the action of this by saturating a small sponge with fld. ext. geranium maculatum and introducing gently into the vagina. If there is dizziness, plethora, paleness of the face, buzzing in the ears, the sight affected, asclepias and serpentaria until you have moisture of the skin. Fld. ext. trillium pend., in dose of from forty to sixty drops with fld. ext. geranium mac. can be relied on in all cases. Lycopin and hamamelin combined act well, and will often stop the flow immediately.

Both these remedies possess a sedative action on the womb and nerves, which makes them valuable outside of their astringent and tonic action. If there are quantities of dark blood fld. ext. crocus sativa will act well, and may be given in dose of twenty drops once in three hours. When there is a want of strength and general laxity in the uterus, give helonias with iron and the other tonics. Where the flow has become chronic, as is the case in some relaxed habits, we should tone up the general system, meet the indications as they may arise or exist in each particular case. We would give:

℞.—Tr. Cinchona Comp..... ʒ viii.
Nitro Muriatic Acid..... ʒ ii.
Syrup Simplex..... ʒ viii.

Dose.—One teaspoonful three times a day.

R.—Fld. Ext.	Helonias Dioi.....	} aa.
" "	Viburnum Pruni.....	
" "	Erigeron Canad.....	
" "	Pulsatilla.....	
		§ ss.

Dose.—Twenty to thirty drops three times a day.

A nutritious, unstimulating diet, freedom from all excitement and perfect rest should be observed.

VICARIOUS MENSTRUATION.

This term is used to distinguish those cases where the menses make their appearance through any but the regular channel.

Causes.—Suppression of the menses at the regular time, disordered circulation of the blood, etc.

Vicarious menstruation is met with sometimes in amenorrhœa—that is, the monthly discharge taking an extraordinary exit. Instead of the blood flowing in a natural manner from the uterus, it may ooze out from under the finger nails, from the gums, eyes, or from the stomach, lungs, nose; if there is an ulcer, it may proceed from that.

Symptoms.—All the symptoms of amenorrhœa, or suppression of the menses, may be present for a few hours when the flow commences, either from the lungs, nose, ears, or some other source. I remember one case where the flow came on regularly every twenty-eight days in the form of a hemorrhage from the lungs. Another case came under my observation where the flow made its appearance through a decayed tooth, another from an indolent ulcer, and several through the nose.

Treatment.—The system must be strengthened, and active enimenagogues given, such as have special influence over the uterus. This, with exercise, a generous diet and tonics, will soon afford permanent relief. Common sense will show that there can be but one rational mode of treatment here, and that is bring back the menses to the normal standard. Give iron and quinine, with helonias and senecia and as direct enimenagogues, capsicum, macrotin, or betin with caulophyllum.

CHLOROSIS.

This is a disease generally confined to unmarried females of a weak, delicate constitution, such as from birth have a feeble appetite, with weak digestion. At puberty there is no menstrual discharge, or if it appears at all, it is very slight. There is a want of natural action in the whole system. The skin presents a yellow or dirty green pallor.

Pathology.—I shall class chlorosis as a disease of the blood, but being almost entirely confined to the female, I have considered it under diseases of the generative system. In chlorotic patients the red corpuscles of the blood are diminished. To make myself understood—in one thousand parts of blood there is n he alth an average of one hundred and twenty-seven and two-tenths of the

red principle, and in chlorotic patients it is often reduced to sixty parts to the thousand; and in one case I remember it was as low as twenty-four parts to the thousand. The office of the red corpuscles, or principle of the blood, is to convey oxygen from the lungs to the different tissues of the body, and to convey carbonic acid out into the lungs to be eliminated. Nutrition, combustion, etc., cannot be performed without a supply of oxygen. It is the great stimulating principle of nature; no function of the human economy can be carried on in a natural, healthy way without this all-important principle; and without this red principle of the blood oxygen cannot be supplied, and the system must suffer according as this principle is reduced.

In consumption, and all wasting diseases, this principle is diminished. Chlorosis, like consumption, is considered by many incurable; hence the importance of fully understanding its nature. Most physicians direct their treatment to restore the functions of the uterus—viz., menstruation—when in truth every other organ is as much deranged as the uterus. Such treatment always fails, and is almost sure to destroy the patient.

Symptoms.—The symptoms attending chlorosis are numerous and variable, and we may be pardoned if we fail to mention them all. The group of symptoms which generally first present themselves are those of marked debility. The patient dislikes to take exercise, is easily fatigued, is weak and languid; she is not cheerful, but dull and listless; desires to be alone, avoids company, does not go into society; is peevish, morose and fretful; is easily made to weep, and often weeps without cause. As the disease advances all these symptoms become more marked; a yellowish or greenish appearance of the face, together with bloatedness of the part, will be noticed; white lips, gums and lining membrane of the mouth are white and bloodless; tongue pale, flabby and easily indented by the teeth, often somewhat enlarged, with a white fur upon it; sad expression of the eyes, with excessive whiteness of the conjunctiva, which often assumes a bluish tinge; dryness and dull, leaden, earthy color of the skin; flabbiness of the muscles, livid and swollen eye lids in the morning after sleeping; œdema of the feet and legs in the evening; diminished appetite or loss of appetite; dyspepsia; a desire for sour things and hearty food, or for things which cannot be digested, such as coal, chalk, cinder, slate pencil, etc.; generally constipation, though the bowels are sometimes found in the opposite condition; then we have a very painful and irritable diarrhœa nausea, with frequent heartburn and vomiting; palpitation of the heart with dyspnœa, especially when going up stairs or ascending an eminence; offensive breath; laziness; spontaneous attacks of weariness, even unto fainting.

The menses, if not already suppressed, are irregular; the discharge scanty, pale and serous, and of an offensive smell; aggravation of the symptoms at each menstrual period, with gastralgia, fainting, melancholy forebodings and gloomy thoughts.

If the disease is not arrested other symptoms develop themselves, such as neuralgia; feeling of fullness and distressing weight in the head; severe headache, especially in the occiput; painful distention of the abdomen.

There may be brittleness and splitting of the finger nails; the hair may lose

its glossy appearance, change its color, and fall out in large quantities; dropsies may develop themselves in various parts of the body; there may be cough with pain in the chest and hectic fever. At length, incurable and fatal affections may develop themselves as consequences of this disease.

Frequently the disease announces itself by sadness and indolence, followed by digestive derangements, discoloration of the skin, and all other symptoms. Again, the disease may set in with gastric symptoms, mucous inflammation of the stomach and bowels, followed by a train of other symptoms.

When met with in young girls who have never menstruated, all the developments pertaining to womanhood will be found lacking; they lack plumpness, are flat chested, etc.

These various groups or symptoms just enumerated will never all be found present in a single case or patient, but many of them may, together with others which we have failed to notice; yet, under the many different forms in which chlorosis presents itself, all these symptoms of diseased action, together with many others, may be met with. It must always be borne in mind that owing to causes, constitutional stamina and other surrounding circumstances, the symptoms of no two cases will ever be found exactly to correspond.

Causes.—According to some authors the proximate cause of chlorosis is an inertia of the genital organs.

This opinion may appear somewhat well founded, if we bear in mind that chlorosis, as previously noticed, generally takes place about the period of pubescence, if the menstrual functions have been delayed or otherwise irregular. It has, however, been met with both in widows and married women in consequence of excesses.

It may also, it is said, be produced by menorrhagia, or profuse menstruation and leucorrhœa. In fact, anything which has a tendency to farther weaken and depress the nervous power of those naturally weak in that direction seems to favor the establishment of chlorosis.

As predisposing causes we may enumerate a lymphatic temperament; a feeble constitution; the influence of a cold, damp dwelling, overcrowding without the proper means of ventilation, whereby the atmosphere is rendered impure and poisonous; want of proper clothing; improper and undue exposure while the menses are flowing; indigestible or not sufficiently nourishing food; abuse of watery, cold or warm beverages, such as tea, coffee, decoctions, etc.; taking too many warm baths; drinking wines of bad quality, abuse of spirits; excessive sleeping or watching, sedentary habits, masturbation, excessive use of vinegar, which many young women use, it is said, to improve the complexion and lessen their bulk; use of arsenous acid for similar purposes, and other debilitating causes.

As exciting causes we may mention disturbing emotions, such as excessive grief, joy, anger, fear, ennui, imprisonment, unhappy or disappointed love; abstemiousness, accidental and prolonged suppression of the menses; debilitating, acute and chronic maladies.

Diagnosis.—The only condition with which chlorosis is apt to be confounded is anæmia. Anæmia is generally caused by various circumstances that tend

to impoverish the blood, as hemorrhage, exhaustive discharges, starvation. Chlorosis is induced by some obscure, nervous depression, and the disease developed by disturbed uterine functions.

In anæmia the alteration of the blood is constant and pathognomic; in chlorosis it is the only one of the phenomena, and not always present. In anæmia there is a constant relation between intensity of symptoms and poverty of blood. This is never the case in chlorosis. A minute and careful examination of the history of every case will usually guide us correctly. Disease of the heart is attended with more pain, more disturbance of the circulation, than chlorosis; the expression of the eyes, the countenance are always widely different.

Prognosis.—The prognosis is generally favorable, if the disease is recent and not complicated, and a rational mode of treatment is employed; but if the disease is old and complicated, it is always serious and incurable, especially if improper modes of treatment have been pursued.

Treatment, Hygienic.—The treatment of chlorosis may properly be considered under two heads, viz., hygienic and medicinal. All our best remedies in this disease, without the proper regimen, exercise, etc., would avail us little. Drugs can but aid nature in her efforts to rid the organism of disease. If that principle which moves, enervates and controls the body be absent—call it life, vital force, or by whatever name you please—all the drugs upon which the materia medica treats are powerless in our hands; all combined cannot cause or produce a single dilation or contraction of the heart.

In the treatment of the disease now under consideration drug medication alone will never cure. We must aid nature in every possible way. If the patient occupies a low, badly ventilated apartment, or an unhealthy situation, she must be removed to a more healthy locality to a moderately warm and dry atmosphere. If the clothing be insufficient or improper, this must be remedied; flannel should be worn next the skin; the clothing should be loose and of sufficient quantity to make the patient feel comfortable.

No tight lacing with corsets should be permitted. Strict attention must be paid to the skin; baths should be taken daily with friction over the whole surface of the body, so as to invite the blood to the surface. An alkaline bath occasionally might do good. Every means we possess must be used to cause and bring about a good and healthy circulation of the blood.

The patient, if able, must take exercise. The hours of sleep should be regulated. Eight or nine hours will generally be found sufficient.

The diet also must be regulated; it should be nourishing, unstimulating and of easy digestion. Soft boiled eggs and oysters are good; fresh beef, veal and mutton might occasionally be eaten. No strong coffee or tea should be allowed, neither any malt or spirituous liquors. Probably the best drink, under all circumstances, is pure water. The patient should have her meals regular and at stated hours each day; she should not be permitted to eat whenever she feels so inclined; she should be instructed to eat slowly and thoroughly masticate her food. Ripe fruits are also admissible in proper season. In short, the diet must be modified and changed to suit the idiosyncrasies of each patient.

MEDICINAL TREATMENT.

The first point here is to attend to the digestive organs. Commence treatment by giving an emetic of the comp. powder of lobelia. It would be altogether unnecessary for us to give reasons why emetics are indicated here. Every informed physician knows the value of emetics in many morbid conditions of the stomach. Why, nature herself very often rids the stomach of offending and indigestible masses. Lobelia emetics will not kill; they are powerful nauseants and relaxants, and make one feel terribly sick for awhile, but the good they do generally more than compensates for all this. We should ever bear in mind that a storm is always followed by a calm; so do not be afraid to administer emetics. These emetics should be repeated every week, once or twice, if necessary. Next we should stimulate the liver to renewed and healthy action, and regulate the bowels. For this the following will be found excellent:

R—Podophyllin	aa.
Leptandrin	grs. iil.
Sugar of Milk	ss vi.

Divide into six powders and give one once in four hours until they operate. We should not produce more than two actions a day. Our great object should be to improve the digestive organs as a means of supplying healthy blood and amending the impaired nervous system. Next we should come in with tonic and stimulating treatment, or both might be employed with advantage at the same time.

R—Tr. Cinchona Comp.	ss iv.
Phos. Acid, Dil.	ss j.
Syrup Simplex	ss iil.

Dose.—One teaspoonful three times a day. For a good stimulant we may employ the following to advantage:

R—Fld. Ext. Propulus Trem.	aa.
“ “ Hydrastia Can.	ss j.
Myrica Comp.	ss j.
Tr. Capsicum	ss ij.
Alcohol	ss xi.
Syrup Simplex	ss xi.

Dose.—One teaspoonful half hour before meals. Should there be pain on slight pressure in any region along the spinal cord, apply a capsicum plaster, and in extreme cases the irritating plaster may be applied for a day or two. As diuretics, queen of the meadow or buchu may be employed. After secretion is well established by the administration of the above remedies, with proper hygiene, our treatment should be mainly directed toward meeting the poverty of the blood and in building up the nervous system. Here probably our best remedy is the comp. syrup of hypophosphites. This should be persevered in, though care should be taken that it is not given in two large and frequent doses. Probably one of the best preparations of iron for these cases is the muriated tinct. ferri, which might be given in ten-drop doses, three times a day, in a little sweetened water. Give through a tube to prevent discoloring the teeth. If the patient during treatment complains of pain in the head and pel-

vic viscera, enmenagogues should be given for twenty-four or forty-eight hours; if the menses then do not make their appearance, they should be discontinued until a more favorable opportunity. Very often, however, no such remedies are needed; as the patient improves, and health returns, nature, of her own accord, will resume all her functions as in health, without the aid of remedies. The following is one of the most reliable prescriptions here:

R—Saturated Tinct. of Red Beet	℞a.
Fld. Ext. Cimicifuga.....	℥ ss.
“ Polygonum	℥ j.
Syrup Simplex.....	℥ iv.

Dose.—One teaspoonful once in three hours for thirty-six hours. If menses do not appear, omit and continue regular treatment.

DISPLACEMENT OF THE WOMB.

The displacement of this organ under the variety of forms to which it is liable, with constipation of the bowels and its consequences, has been, and still continues to be, the bane and scourge of the female sex. This organ is situated between the abdominal and pelvic cavities, sustained by its ligaments, and supported in its erect position by two septa between it and the rectum posteriorly; either of which when relaxed will allow the womb to become displaced; and as one or the other is often stretched, they are a frequent source of displacement and derangement of the functions of this important organ.

Cold is, perhaps, the most frequent exciting cause of uterine disease. The womb being debilitated by displacement is less capable of resisting the shock produced by cold, which rarely excites a disposition to disease.

Symptoms.—The symptoms of prolapsus vary according to the descent and direction of the fundus, and the antecedent causes of the displacement.

If the small intestines rest equally on the lateral ligaments a sense of fullness and bearing down weight, with pain and weakness of the back and loins, are complained of. If the sigmoid flexure be the cause, the patient will frequently complain of pain in the left side, and a sense of fullness in the rectum with obstinate constipation. And when the loaded condition of the rectum is the cause, symptoms simulating those of gravel ensue. Most frequently displacement of the womb is neglected until the bladder, rectum, and vaginal membrane are affected, before the physician is consulted when a combination of symptoms occur; such as a sense of weakness and pain in the back, with dragging or bearing down sensations as if something was about to pass with frequent leucorrhœal discharge, and sometimes strangury. Where the fundus of the uterus rests upon the rectum it very much increases the violence of the bearing down pains, producing a sense of fullness and pain in the abdomen.

In such cases, the fundus is found below the promontory of the sacrum, with the os uteri resting under the symphysis pubis.

This form of displacement is most frequently met with in pregnancy, yet it is found in the unimpregnated state also, though rarely.

The constitutional symptoms attendant on these displacements are necessarily various. In some the general health suffers periodically, whilst in others the strength is reduced and the variable symptoms of dyspepsia and hysteria are prominent. The nervous connection is so intimate between the organs of the pelvis and the abdomen that the symptoms frequently invade the entire system.

At other times the heart apparently receives the shock, and thus all the organs in the three cavities are liable to morbid nervous derangement from the same source—displacement of the womb—resulting from the diseases of the rectum, bladder and vaginal membrane. Hence, where the female has lost, or is about to lose her health, the first thing to determine is, the real condition of the organs of the pelvis, since the symptoms arising from disease either of the womb, rectum or bladder, are present when one or all of these affections exist. I have met with cases where one or two small, fleshy tumors in the rectum, within the action of the levator ani muscle, had been treated for disease of the liver or heart. Again, I have found all the symptoms of displaced uterus arising from over distention of the rectum and engorgement of the blood vessels. When, therefore, the organs of the pelvis are believed to be the seat of disease, I direct the patient, lying on her right side, to elevate her hips, when the symptoms will disappear if the disease be prolapsus or procidentia, produced by the weight of the superincumbent viscera.

But if the prolapsus be produced by disease of the rectum, the relief will be but partial, and will return as soon as the erect position is resumed. When the disease is complicated, examination by the touch is necessary to determine its true character. The weight of the abdominal viscera sometimes produces what is called ante flexion or retro flexion of the fundus of the womb, while the os uteri rests against the curved plane of the vagina.

These flexions produce an angle in the cervix uteri which is a fruitful source of dysmenorrhœa, sterility and chronic thickening of the tissues of the organ. To enable the reader to comprehend my views in relation to the several diseases connected with the subject, and to show that the cause and effect are in conformity with the anatomical arrangement of the pelvic organs, I lay down the following propositions, viz :

1. The womb is suspended between the upper boundary of the true pelvic cavity, and the lower boundary of the abdomen, and between the rectum and bladder, by the duplicatory attachments of the peritoneum and two septa, which are its natural support.

2. The vaginal membrane is attached to the lower boundary of the womb peritoneum, and the urethra under the symphysis pubis, and were it not for these attachments the slightest debility would bring on prolapsus of the vaginal membrane as frequently as the inner tunic of the rectum is prolapsed.

3. The vagina alone is incapable of affording any support to the womb in its primitive attitude, or of resisting its descent.

4. As long as the ligaments and septa maintain their energy, there can be no misplacement of the womb, except by violence.

5. Prolapsus uteri, procidentia retro flexion and ante flexion rarely result from disease of the womb, but from debility, or extension of its ligaments.

6. The indications here are to restore the ligaments to their healthy condition by removing the cause.

Causes.—The predisposing causes of the disease of the uterus and its appendages to be named hereafter are as follows, viz : Gravitation of the bowels from sedentary habits, constipation, diseases of the rectum, over distension of the bladder, mechanical injury, over-reaching, too frequent child-bearing, sudden concussion upon the abdomen, tight lacing above the umbilicus, and heavy lifting. These causes, although many are the consequence of other causes, yet gravitation of the bowels, constipation, and disease of the rectum, may be considered as the principal antecedent causes of prolapsus uteri; while retroversion, and anteversion, dysmenorrhœa, hysteria, fluor albus, chronic enlargements, and neuralgia, are all referable to the above mentioned conditions as their antecedent causes. Many organic diseases derive their origin from the same sources, and in clinical practice, there is no class of diseases more frequently met with than those above enumerated. The organ is subject to depression in a direct line, or by an inclination of its fundus, most frequently backward, and toward the left side, though sometimes in a different direction.

Treatment.—In the treatment of these several diseases originating from a depressed or altered condition of the organ, the following principle should be kept in view: First, no two cases of displacement are in all respects exactly alike in their antecedent or exciting causes, as their constitution, habits, complications, functional or organic alterations vary. Hence the most simple form of prolapsus in different constitutions will require a difference in their treatment. For instance, the treatment differs if it has been the consequence of different causes, as sedentary habits, constipation, disease of the rectum, over-distension of the bladder, too frequent child-bearing, leucorrhœal discharge, chronic enlargement of the womb, constitutional disease, mechanical injury, tight lacing, sudden concussion, etc.

The indication in derangement of the womb in one is to cure the constipation and restore the strength of the ligaments; in a second, to cure the disease of the rectum, and in a third, to support the abdominal viscera and invigorate the muscular system.

For the sake of illustration, I will suppose a case of the most prominent displacements:

1. *Prolapsus uteri* produced from sedentary habits, relaxed muscular system and gravitation of the bowels. The remedial agents are partly mechanical, as the disease originates from a failure of the physical functions and may be successfully met by placing the patient upon the right side, and elevating the hips with the thighs flexed, and the body inclined forward, which brings the axis of the superior and inferior strait in the same line.

This position continued for fifteen or twenty minutes will suffice to restore the bowels to the abdominal cavity, and the womb to its natural position, where a suitable supporter will prevent the recurrence of visceral displacement. The description of the instrument, and the mode of applying it, will be given hereafter. After the application of the supporters, the cure may be completed

by aperients, alteratives, cold sponging, or shower baths every morning with exercise in the open air.

2. *Procidentia* produced from distension and gravitation of the bowels. The mode of restoring the bowels and the application of the supporter in this is the same; but in some cases the uterus is so far descended that the horizontal position is required to be continued for several days, when gentle pressure of the hand will readjust the organ. After which the indications are to build up the whole system, overcome constipation by mild aperients (avoid all drastic purgatives), and use a wash to the vagina of :

R—Fid. Ext. Myrica Cer	aa.
“ “ Hammamelis Vir	
“ “ Nymphaea Odor	3j.

Add a teaspoonful of the above to a pint of water, and use half a pint two or three times a day with a vaginal syringe. The cause of distension of the bowels and rectum in such cases must be removed, and the constitutional symptoms treated by alteratives and tonics, cold sponging and moderate exercise.

3. *Retroflexion* and *anteflexion* are the consequences of the superincumbent pressure of the abdominal viscera and force of the diaphragm, which produce a bend in the neck of the womb. This may be readily removed by the use of the supporter with alteratives and aperients to restore the functions of the organ.

4. *Retroversion of the uterus* is a disease most frequently met with in the first months of pregnancy, and is a displacement backwards, with its fundus below the promontory of the sacrum, the os uteri being thrown forward under the symphysis pubis, where it presses upon the urethra producing strangury, whilst the fundus is resting upon the rectum in its descent along the curve of the sacrum. The symptoms are violent bearing down pains, with a sense of fullness in the passage, and pains in the lower part of the abdomen, which are principally owing to distension of the bladder.

The treatment, after the organ is restored to its natural position, consists in wearing a supporter until the first three months of pregnancy have passed. The patient should frequently void her urine, or have it drawn off, if there be any obstacle as constipation, distension of the bladder, with the weight of the viscera of the abdomen, which are the chief causes of the difficulty. The best mode of detecting this disease is by an examination of the passages. After the bladder has been emptied, and the organ restored to its proper elevation, the cure is completed with the supporter and aperients.

Anteversion is in nearly every case produced by a loaded condition of the rectum and sigmoid flexure of the colon. The former by its distension carries the organ forward, whilst the latter in its impeded condition descends against the fundus, which evidently establishes irritation of the uterus, and thus increases the morbid action.

Now, in these cases the treatment is plain. First remove the cause, and then tone up the system. The following general plan of treatment, in all cases of displacement of the womb, will be found effectual. As there is in all cases more or less debility, we would give :

R —Fld. Ext. Helonias Dioi.....	aa.
“ “ Hydrastis Cana.....	3 j.
“ “ Senecio Auran.....	3 ij.
“ “ Canlophyllum, tha.....	3 x.
Alcohol.....	
Syr. Simplex.....	

Dose.—One teaspoonful, gradually increased to a tablespoonful, three times a day before meals.

R —Fld. Ext. Apocynum Can.....	aa.
“ “ Xanthoxylum.....	3 j.
“ “ Viburnum.....	3 ss.
“ “ Aletris Far.....	

Dose.—Twenty drops in water after meals.

Keep the bowels regulated with some mild aperient; never allow a day to pass without a thorough action; avoid all drastic purgatives, but never neglect the bowels, and direct the wash mentioned under procedentia. In all displacements of the womb this wash commends itself; it is an active astringent, tonic and stimulant, far preferable to the poisonous preparations of lead, copper, etc., of the Old School.

Now as to a supporter: in this, as in all our treatment of derangements of the human system, nature and common sense must govern.

Never, on any account, introduce a pessary; never, on any account, apply one of these abominations, *a la* Babcock's supporter.

They are at war with nature, and, my word for it, once you use them you can never dispense with them; in that case they distend the parts and make bad matters worse.

A good abdominal supporter, hard rubber preferred, fitted to the person will hold up the abdominal viscera; give all necessary support, and your constitutional and local treatment will restore your patient to health. I repeat again, while using other means never forget the bowels.

METRITIS, OR INFLAMMATION OF THE UTERUS.

Inflammation of the unimpregnated uterus is by no means rare. It is generally met with in a chronic form, and the symptoms are so various that the disease is in most cases entirely overlooked, imperfectly understood and improperly treated. Women thus affected are almost unfitted for any of the duties of life, and their complaints are often treated with indifference, to say the least, and attributed to cross, fretful dispositions.

Symptoms.—These are various, and the patient often complains less of trouble in the region of the uterus than of other symptoms.

There is generally a sense of heat and burning in the womb, which, upon examination with the speculum, presents a deep, unnatural redness, and upon touch the temperature is found considerably above a healthy standard. There is often an unnatural discharge from the uterus and vagina.

The uterus and stomach being intimately connected, there is always more or less derangement of the digestive organs, vomiting, a sense of fullness, loss of appetite, heat and burning sensation rising up in the throat. The liver sym-
 p-

thizing, we have torpidity of that organ, with constipation of the bowels, occasionally diarrhoea, sallow complexion or jaundice, and pain under the shoulder.

The nervous system is always sympathetically affected, and headache more or less severe is always present—neuralgic pains, sharp, cutting, running through the whole body, occasionally amounting to spasms, nervous debility, melancholy, despondency, with hysteric sobbing; the patient feels as if forsaken by every one; life becomes a burden and death would be preferable to the suffering she has to endure. None but women thus affected can ever know what women have to suffer.

Causes.—Inflammation of the uterus may be brought on by cold, mismanagement in confinement, mental anxiety, over indulgence in sexual intercourse, gonorrhoea, long walks while menstruating.

Treatment.—In metritis the indication is to remove all local irritation, equalize the circulation and build up the general system. As the trouble is in most cases chronic, we shall find it necessary to keep up the treatment for some weeks in order to make a permanent change. Give :

R. —Fid. Ext. Asclepias.....	}	aa.
“ “ Lupulin.....		
“ “ Asparagus.....		
“ “ Cypripedium.....		3 ss.

Dose.—Twenty drops three times a day half an hour before each meal.

R. —Syr. Stillingia Comp.....	5 iv.
Fid. Ext. Helonias Dioi.....	5 j.

Dose.—One teaspoonful three times a day one hour after meals.

If wakeful at night, give fld. ext. humulus, twenty drops just before retiring.
Locally as a vaginal injection :

R. —Sulph. Hydrastia.....	grs. xxx.
Aqua Calcis.....	5 viii.
“ Camphor.....	5 viii.

Use one-half at night and one-half in the morning; rest in the recumbent position. A good, nutritious diet; avoid all exciting causes.

ENGORGEMENT OF THE UTERUS

Differs but little from inflammation of the uterus. In fact, is inflammation with too much blood tending to the uterus, often producing a state of congestion or interruption of the circulation of the blood. The cause is generally due to impurities of the blood, and can be overcome by alteratives and tonics. Among the best of these is comp. syrup of stillingia in tablespoonful doses three times a day. In connection with this, fld. ext. serpentaria, fifteen drops three times a day, to equalize the circulation of the blood; injections of cold water morning and evening, abstinence from sexual intercourse, light, nutritious diet, exercise in moderation in the open air; discard corsets, and avoid the erect position as much as possible.

ULCERATION OF THE UTERUS

May result from inflammation, or engorgement improperly treated ; or it may arise from syphilitic poison in the blood, or a scrofulous taint, or predisposition in the system.

Symptoms.—Tenderness of the organ, with a discharge of pus, occasionally mixed with blood, pain and soreness in the parts, with derangement of the menses, leucorrhœal discharge. The symptoms are more or less severe according to the extent of the ulcerations.

Treatment.—Ulceration of the uterus is due to plethora or impure condition of the blood, and local lesion, or weakness, together with chronic inflammation, leads to ulceration of the uterus. Being a result of inflammation, it should be treated upon the same principle as ulceration of other parts. Internally, alteratives, such as the comp. syr. stillingia with iodide of potass. where we have full habit, or the hypophosphites where we have an anæmic condition. Locally we repudiate all caustic or irritating applications. The fld. ext. of myrica cerif. and hydrastia in equal parts, and added to water, say a teaspoonful to a pint, will cleanse and stimulate the ulcers, and is all we need use of a local treatment, or we may substitute the nymph. odorata for the hydrastia. I have had several ulcers heal under the use of the nymphia odor as a lotion or wash. The wash should be used with syringe, and retained as long as possible.

Under a treatment like this, we should find marked improvement in a short while and a cure in due time.

CANCER OF THE UTERUS.

This is a formidable disease, and one, I regret to say, that is seldom cured. It is never met with except in patients predisposed to scrofula, or where caustic has been used in ulceration of the womb, keeping the parts irritated until cancer is developed. No age or condition is exempt from cancer of the womb, though most frequently met with in married women who have borne no children, seldom developed before the forty-fifth year, or about the cessation of the menstruation. It may attack the neck or body of the womb, and in most cases the whole organ is involved during the process of the disease. Cancer of the womb is generally of the epithelial variety.

Symptoms.—Cancer of the womb comes on so gradually that the patient is not alarmed until it has completely undermined the constitution. The cancerous diathesis is always present, yellow, swarthy complexion ; to this is added profuse menstruation, and in the interval between the periods, a discharge of dirty water. As the disease advances the discharge is more profuse, changing to hemorrhage or bloody discharge ; the menses become more profuse and irritation of the kidneys and bladder ensues, with sharp, cutting pains in the hips and back ; neuralgic pains in the womb ; the hemorrhage becomes constant and exhausting, the discharge very offensive, and death puts an end to her sufferings.

These are the symptoms in most cases of uterine cancer. I met with one case where there was no pain.

The symptoms vary according to the variety. Cancerous or fungous tumors of a malignant nature occasionally attain such proportions as to cause paralysis of the lower extremities, and make life a burden to the sufferer. The bowels are irregular, constipated one day and relaxed the next.

Causes.—As before remarked, cancer of the womb is never met with in those whose blood is in a healthy condition. Scrofulous taint, inherited or syphilitic inoculations, irritating appliances to the womb are the leading causes of the development.

Treatment.—The treatment of cancer of the uterus should be the same as directed for cancer of other parts. The general constitutional treatment, control the hemorrhage with oil of erigeron. Neutralize the offensive odor by the use of solution of permanganate of potass. as an injection, two to four grains to the ounce of water.

The nymphœa odorata and the myrica are excellent washes for cancer of uterus. Build up the general health, and use every possible means to raise the vitality. In this way I have succeeded in curing several well developed cases of cancer of the uterus. You can at least palliate and retard progress in every case if taken in time.

FIBROID TUMORS OF THE UTERUS

Are often met with and are difficult to cure. The same causes that lead to cancer may produce this class of tumors. They are generally hard and compact and may cause little inconvenience until they have attained considerable size, then they bleed and cause more or less pain in the pelvic region; the discharge is not often offensive; menstruation is profuse and exhausts the patient's strength; diarrhœa, night sweats, and general debility put an end to the suffering.

Treatment.—Never have them cut, gouged or interfered with by the knife. Excite absorption by discutient ointment or lotion. Otherwise treat on general principles.

UTERINE POLYPUS.

This usually makes its appearance in the form of a fleshy tumor or substance protruding from the os uteri. I have met with them from the size of a wheat straw up to two pounds in weight, of all shapes, from a mere elongated tumor to a cauliflower shape, or shape of a mushroom.

Symptoms.—A sense of weight and bearing down in the region of the uterus, and when they occur before the change of life, there is a constant flow of the catamenia, or true hemorrhagic flow, or we may have a profuse watery discharge, odorless and colorless, between the menstrual flow. There is often a protrusion

from the vagina when the tumor is large. The growth can readily be detected by the touch.

Causes.—Polypus usually occurs about the change of life, though it is met with in all ages, from the girl in her teens to the matron of seventy. The primary cause of these growths is evidently some derangement of the blood, with local irritation which may be excited by caustic, the introduction of uterine sounds, miscarriage, delivery by forceps, etc. There is always evidence of morbid accumulation in the system.

Treatment.—Should be both constitutional and local. First, we would put the patient on an alterative course :

R.—Fld. Ext. Iris Versi.....	3 ij.
“ “ Cimicifuga	} aa.
“ “ Phytolacca	
“ “ Xanthoxylum	
“ “ Podophyllum	3 ss.
Alcohol.....	3 ij.
Syrup Simplex	3 x.

Dose.—One teaspoonful before each meal.

R.—Fld. Ext. Helonias Dioi.	} aa.
“ “ Senecio Aur.....	
“ “ Canlophyllum tha	
Hydrastis Can.....	3 ss.

Dose.—Thirty drops after meals. Locally :

R.—Fld. Ext. Myrica.....	} aa.
“ “ Nymphœa Odor.....	
	3 i.

One teaspoonful to a pint of water. Inject one-half, night and morning. Keep the bowels open with :

R.—Podophillin.....	grs. ss.
Leptandrin	grs. j.
Sugar of Milk.....	grs. ii.

Mix.—Give at a dose.

Under this treatment I have had the polypus drop off and disappear altogether. If this is not accomplished at the end of one month, then make a ligature of surgeon's silk, introduce well up to the point of attachment, tighten the ligature around the polypus at the base. Let it remain ; tighten daily until it sloughs off. To prevent a secondary growth, apply to the base :

R.—Tinct. Ferri Chlorid..... q. s.

Or fluid ext. of sanguinaria to the part where the tumor is attached.

I have found this to prove effectual in over fifty cases, and never had but two to return, which yielded to a second, and in one case a fourth treatment. This is, in my judgment, a rational, safe treatment, far superior to the gouging and cutting resorted to by the Old School in their efforts to cure this growth.

OVARITIS.

Inflammation of the ovaries may be either acute or chronic. The characteristic symptoms are the same, except more intense in acute attacks. The inflammation may be confined to one, or both ovaries may be involved; the left more subject to attack than the right.

Symptoms.—The pain is variable, sometimes intense, like unto labor pains, but more frequently it is a dull aching with occasional sharp, lancinating attacks, tenderness over the seat of ovary, fever, rapid pulse, nausea, restlessness, disgust for food. It may terminate in resolution, suppuration or ulceration. The chronic form of ovaritis is most common and runs a tedious course. The most prominent symptoms are tenderness at the upper part of the thigh, scanty and difficult menstruation, pain on sexual intercourse, nausea, general irritable stomach, indigestion, hysteria, irritable bladder, numbness of limbs and tumefaction of the breast. During the progress of the case, the enlarged ovary may be distinctly felt through the abdominal parietes, and by examination per vagina. When suppuration takes place, it generally discharges into the vagina, and when the discharge is stopped, the pain returns in all its intensity until the pus or matter makes an outlet. Sterility is often caused from chronic inflammation of the ovaries, though one may be affected and the other in a healthy condition, and impregnation results the same as though both were in a healthy, active state.

Causes.—Suppression of menses from cold, gonorrhœa, rheumatism, syphilitic taint; the use of caustic to os uterus, awkward use of uterine sound, catheter, bougie, or other means resorted to to produce dilation; excessive sexual intercourse, anxiety, masturbation, interruption of sexual act to prevent conception, etc.

Treatment.—In acute attacks warm fomentations over the region of the ovaries, or astringent poultices, as hemlock bark, etc. At same time give :

R.—Fld. Ext. Asclepias	} aa.
“ “ Serpentaria.	
“ “ Lobelia.....	
	§ ss.

Dose.—Thirty drops once in three hours until the system is thoroughly relaxed and fever subsides.

After the urgent symptoms have passed, give the syr. stillingia comp. with iodide potass. and build up the general health with tonic. In the chronic form, where the pain is dull, aching, a capsicum plaster over the region of the ovaries will act well, keeping up the alterative course till every vestige of the inflammation disappears. Sexual intercourse prohibited, all excitement avoided, and strict attention to diet, bathing, exercise in the open air—in fact, every influence brought to bear that has a tendency to build up the system and purify the blood.

OVARIAN DROPSY.

Symptoms.—The symptoms that mark the early stage of dropsy of the ovaries are very obscure, nor can the existence of the disease be ascertained until it has made such progress as to have formed a swelling at the lower part of the abdomen. This swelling is attended with a sense of *weight* in that part, and according as the right or left ovary is affected, the tumor and hardness are perceptible in one or the other groin. When the disease is somewhat more advanced, fluctuation may generally be felt, sometimes nearly as distinct as in common ascites, but more usually obscure. Probably this depends on the degree of tenacity in the contained fluid.

The great mark of distinction between ovarian dropsy and ascites is to be found in the little disturbance which the former occasions in the constitution. The appetite remains good. There is no thirst, and the urine continues to flow as in health.

Neither weakness nor hectic are produced—at least in the early stages of the complaint, and the menses are unaffected.

So little does the disease affect the general health that one case came under my observation where a negro woman became pregnant and carried a child to the full time with one ovary enormously distended by dropsy. It is also more circumscribed than ascites; swelling and induration of the inguinal glands also represent it; they are, however, harder, more fixed, irregular and more painful to the feel. When the disease has reached a certain point, it produces many very unpleasant symptoms from its mere bulk, difficult breathing, dyspepsia, costive bowels, swelled legs, with cramps and a varicose state of the veins. The progress of ovarian dropsy is subject to great variety. Instances have been met with where it proceeded rapidly and proved fatal in one or two years.

• Much more commonly its advances are very slow, and life can often be preserved under it with tolerable comfort for many years. Very few cases are recorded of a cure of this disease, either by the efforts of art or nature.

It would appear as if the absorbents of the ovaries were hardly capable of being excited to the action necessary for the removal of the fluid.

In one instance only have I ever known such absorption to occur, but the relief here was permanent. Death takes place sometimes from *exhaustion*, and sometimes from inflammation supervening on the sac in consequence of tapping.

Post-mortem.—On dissection the ovarium is found converted into a capsule, often of enormous size, and of variable thickness, adhering in most cases, but not universally, to the peritoneum lining the abdominal parietes. It is sometimes so large as to occupy almost the whole cavity of the abdomen. In other cases, instead of a single bag, the ovary is converted into a congeries of cysts, either separate or communicating with each other by considerable openings and containing at times fluids of different kinds. Occasionally tumors of a firm texture are found attached to the inner surface of the capsule.

Causes.—Of the causes of dropsy of the ovaries very little is known. It does not appear that impregnation gives any peculiar disposition to it. Among the recorded cases many occurred among unmarried women. It has commenced as early as the twentieth year of life, but is most frequent after thirty. Some cases may possibly owe their origin to *inflammation* of the ovaries, others to blows, falls, frights, violent passion or cold.

Treatment.—Ovarian dropsy is very obstinate, and the only method of curing it without an operation is to wear a pad over the tumor constantly saturated with :

R—Iodide Potass	aa.
Muriate of Ammonia.....	} j.
Bromide Potass.....	
Water.....	
	viii.

Let there be some degree of compression. Apply the discutient ointment over the tumor twice a day, and keep the bowels open with a mild purgative. Give the syr. iris versicolor comp. with iodide of iron, one ounce of the iodide of iron to a pint of the syrup.

Dose.—One teaspoonful before each meal.

COMPOUND CYST.

This is a number of cyst, one inside the other, and are capable of attaining very great size. The small cyst are attached to the outer or larger one, and all are enclosed in the outer membrane.

Symptoms.—A dull, uneasy sensation in the ovarian region; often the menses are suppressed; a slight enlargement is discovered in the region; occasionally hectic fevers; as the cyst enlarges the intestines are displaced, the liver, spleen, and stomach pushed upward, constant pain, vomiting, emaciation, etc. The sac is sometimes ruptured and its contents emptied into the abdominal cavity, fallopian tubes, or womb. When emptied into the abdomen, if the system is not too much exhausted, absorption may take place and a cure be effected, or it may produce peritonitis, and death result.

Causes.—Falls, blows on the abdomen, inflammation, suppression of the menses, are the most prominent causes of the formation of ovarian cyst.

Treatment.—When the disease is far advanced, tapping is the only resource, and is but temporary, as the sac fills again very rapidly. I have known cases tapped fifteen times, and more than a barrel of fluid drawn off in the aggregate, the patient sinking finally under the exhausting drain of the system. The progress of the disease may be stayed and life prolonged by an active alterative treatment repeated spring and autumn.

DISEASES OF THE OSSEOUS SYSTEM.

INFLAMMATION OF BONES.

The same organization, which enables bones to repair the effect of injury, renders them liable to inflammation, and the various changes which are consequent on that process.

Inflammation of a bone may arise from external causes—that is, from accidental injury, such as a blow; or from internal causes, such as a scrofulous disposition of the system, or influence exerted over it by the venereal poison. Inflammation of the bone may, as in the soft parts of the body, be either *acute* or *chronic*; it may vary considerably in different cases. Enlargement from interstitial deposition and ulceration, or caries, proceeds from what we should call chronic inflammation of the bone, whilst suppuration and necrosis are referable to acute inflammation.

Symptoms.—Persons laboring under inflammation of the bones experience a deep-seated, aching pain, extremely distressing to the feelings, and finally affecting the health to so remarkable a degree as to induce a speedy emaciation of the body.

The part swells, and a hard tumor forms; the skin becomes red and extremely sensible, and there is an increase of heat, with other symptoms of inflammation.

Treatment.—This must be regulated by the stage and urgency of the symptoms. Warm poultices constantly applied to the affected part with such internal remedies as will support the strength. You should apply hop, elm, or flax seed poultice, to which may be added lobelia and capsicum. Internally give:

R—Fld. Ext. Asclepias.....	aa.
“ “ Serpentina.....	ss.
“ “ Cypripedium.....	ss.

Dose.—Thirty to forty drops once in three hours. Keep the bowels open with mild purgatives. Give the patient rest, and tone up the system with tonics, a good nutritious diet. Where the inflammation has assumed a chronic form apply locally:

R—Iodide Potass.....	aa.
Muriate Ammonia.....	ss.
Aqua.....	iv.

Keep a cloth saturated with the above constantly applied, and cover with oil silk.

When we have ulceration, then a lotion of the fld. ext. myrica, a teaspoonful to a half pint of water. Wash the ulcerated parts twice a day, and dress with black salve—giving alteratives and tonics to overcome the constitutional trouble.

PERIOSTITIS.

The periosteum, or the fibrous membrane which covers the bone, is equally liable, if not more liable, to inflammation than the bone itself.

As contrasted with inflammation of the osseous structure, inflammation of the periosteum is much more rapid in its development; it takes place much quicker; it is seated upon the bone, and is firm to the touch, though possessing a certain degree of elasticity.

Symptoms.—The local symptoms of periostitis are severe, and the constitutional symptoms are well marked. The pain is considerable; for, being fibrous, and of a very condensed nature, the structure does not easily give way, and when the inflammation is extensive, considerable sympathetic effect is produced on the circulating and digestive symptoms, and more or less general disturbance ensues.

Treatment.—The same general plan of treatment as directed for inflammation of the bone. If the disease has made much progress apply a poultice of iris versicolor pul. and make into a poultice with soda crackers. In the early stages this will stop the progress of the inflammation at once—in fact, it is almost a specific for periostitis; will abort felons in every case, if applied when the pain is first perceptible. We should give alteratives from the beginning in periostitis. The syr. stillingia comp. with iodide potass., or any of the vegetable alteratives. When we have periostitis associated with anæmia, then the treatment directed under that head, with proper local applications, will act well.

SUPPURATION IN BONES.

Abscesses are sometimes found between the periosteum and surface of the bone; at other times within its cancellated structure, and occasionally, but very rarely, between the lamina forming the shell of the bone.

1. When an abscess forms between the periosteum and surface of the bone, it possesses the common characters of the formation of matter.

Symptoms.—There is severe pain extending along the surface of the bone; this pain, though severe, is not of an obtuse kind; it becomes worse at night and produces an inequality on the surface of the bone. It is a long time, however, before the periosteum ulcerates; the skin presents a circumscribed blush; you may even feel a fluctuation for a long period before the abscess breaks. When you have ascertained that matter has formed, it should be evacuated as soon as the redness and fluctuation are distinct. The opening should be small; if it is left to nature or a large wound made by the knife, the bone is deprived of its supply of blood; the part exfoliates and granulations afterward shoot out.

Treatment.—As soon as the matter has been discharged, the periosteum should be placed on the bone as closely as you can, leaving a small opening for the escape of the matter, and apply at the same time strips of adhesive plaster

around the opening to keep the periosteum in contact with the bone, and the probability is, that the parts will unite by bone. The treatment, when the bone is exposed and presents a dead appearance, is to touch the exposed part with nitric acid, two drops to an ounce of water and gradually increase the strength. In this way the dead part will be thrown off and a healthy granulation of the surrounding parts will be established.

2. When an abscess forms in the cancellated structure, a peculiar process takes place. The result of the pressure of the abscess is to cause an absorption of the cancellated structure, and in this way the space for the increase of the abscess continues to be enlarged. It is sometimes called medullary abscess. At the time there is an inflammatory action existing in the medullary membrane, there is a corresponding degree of inflammation going on in the periosteum, which causes a bony crust to be deposited on the surface, which materially increases the size and strength of the bone. But, upon that part of the bone least covered by skin and muscles, there is an ulcerative process going on which overcomes the deposit from the periosteum, and thus the matter is evacuated. In this way it often happens that there is little of the original bone left, but the weight of the body is principally supported by the new shell of the bone which is formed.

In these cases, if the constitution is so enfeebled that it cannot deposit a sufficient quantity of bony matter externally whilst the process of absorption is going on within, then the coats of the bone become so thin that the bone either breaks or cannot support the superincumbent pressure. The best treatment to be pursued in this stage of the disease is to inject the interior of the bone with :

R—Fld. Ext. Myrica Cer	ʒj.
Aqua	ʒiv.

And at the same time insist on the observance of rest. Support the constitution and avoid all those causes which would produce irritation, either generally or locally.

3. Abscesses in the shell of the bone require to be treated in the same way, and their process of restoration occurs rather quicker than when the abscess is seated more internally.

CARIES.

Caries is a disease of the bones supposed to be very analogous to ulceration of the soft parts. The bones, like other parts of the body, are composed of arteries, veins, absorbent vessels, nerves and cellular texture. They are endued with vitality; they are nourished, they grow, waste, are repaired, and undergo various mutilations, according to the age of the individual, and they are subject to diseases analogous to the soft parts.

Bones of a spongy texture are more frequently attacked by caries than such as are compact. Hence the vertebræ, astragalus, and other bones of the tarsus, those of the carpus, the sternum, the pelvis, and the heads of long bones are

often affected; and the bones of young persons are unquestionably more frequently the seat of caries than those of old subjects. In the most common species of caries, a loose fungous flesh grows out of the interstices formed on the surface of the diseased bone and bleeds from the slightest cause, while in the soft parts a sinus generally leads down to the caries and emits a very fetid, dark-colored sanies.

Caries are divided into three classes, viz: Caries from external causes, as blows or injuries of the bones. Caries from internal local causes, as abscesses, etc. Caries from a general internal cause, as syphilis, mercury, scrofula, etc.

Treatment.—The indications in the treatment in caries are to produce a change in the action of the diseased portion of bone, whereby it may regain a healthy state. This is to be accomplished by alteratives and tonics internally, with the myrica lotion to the affected part and black salve as a dressing. The constitutional treatment must be such as will meet the indications of the case, and, so far as possible, remove the cause upon which the caries depend.

NECROSIS.

This disease of the bone is very similar to caries, yet sufficiently distinguishable by its characteristics. In *caries* the nutrition of the bone is only impaired, and an irregular action disunites the elements of the bony structure, which consequently sustains a loss of substance, but every remaining part is yet alive.

In *necrosis*, on the contrary, the vitality and nutritive functions cease altogether in a certain portion of the bone, the separation of which then becomes indispensable.

Symptoms.—The symptoms which attend necrosis are those of a high inflammatory character. There is a considerable tumefaction of the limb; a firm tumefaction with increased heat, throbbing and violent pain; and when you put the hand to the part and grasp it, you are sensible of an increased size in the bone. With these local symptoms, you have very considerable disturbance of the circulation, decrease of appetite, white tongue, thirst, want of sleep, and very commonly delirium.

Causes.—The causes of necrosis are not essentially different from those which produce ulcers and gangrene of the soft part. These may be wounds, contusions, pressure, fractures, comminutions, acrid substances, caustics, extreme degree of heat or cold, or they may exist in constitutional disease.

Treatment.—Perfect rest, free incision so as to allow the escape of matter, then inject the opening with:

R.—Sesqui-Carbonate Potass	3 ii.
Aqua	O ii.

Inject one to three ounces at a time and dress with the black salve. Give syr. iris versicolor comp. one tablespoonful three times a day. Alternate with tinct. cinchona comp. in teaspoonful dose; keep the bowels well regulated.

The diet, in all diseases of bone, should be nutritious, and abound in phosphates such as cracked wheat, eggs, oysters, shell fish generally, rare beef, cream, etc. This with rest will expedite the process of repair.

EXFOLIATION OF BONE.

By exfoliation of bone is meant the spontaneous separation of one part from the other, and this may be external or internal. The process of separation is the same as among soft parts; ulceration takes place, granulations form between the dead and living bone, and the useless portion thus becomes detached and forced away.

External.—When the periosteum is separated to any extent from the surface of the bone, if it be immediately replaced, it will again unite, and no exfoliation will then take place; but if it be allowed to remain detached from the surface of the bone for twenty-four hours, it will not reunite; the bone dies and is ultimately separated. The dead portion of the bone appears at first white, but it soon becomes black from the hepatized ammonia formed during the putrefactive process. The separation of the dead from the living bone is a tedious process, and is affected by the action of the absorbents on the surfaces of the living bone; removing that part which is in absolute contact with the dead bone, a space is thus formed into which granulations can rise. When these granulations reach the dead bone, they also act on it, and therefore you find the surface rough and uneven, which is in contact with them, whereas the external surface remains perfectly smooth.

Treatment.—The object of your treatment in this case should be to quicken the process of the granulations, and to act chemically on the parts by the use of the acid lotion directed in suppuration of bone, and bind the exfoliation by adhesive strips or roller bandage so as to hasten the process of absorption.

Internal.—Internal exfoliation is also a very singular process, which I have already described to you when speaking of medullary abscess. In the treatment of this disease as soon as the bones become loosened, which you may easily know by passing a probe, you should remove a portion of the new bone, divide the old and remove with forceps, then treat the same as in fractures, perfect rest, etc.

EXOSTOSIS.

An exostosis is a tumor formed by an exuberant growth of bony matter on the surface of a bone. Exostosis have two different seats from whence they may be named *periosteal* and *medullary*.

By *periosteal exostosis* is meant an osseous deposit, seated between the external surface of the bone and the internal surface of the periosteum, and firmly adherent to both; and *medullary exostosis* is a similar formation originating in the medullary membrane and cancellated structure of a bone.

Exostosis may be divided into two other general divisions, according to their structure, being *cartilaginous or fungous*.

Cartilaginous.—The cartilaginous exostosis contains only a very small quantity of the phosphate of lime, and grows originally from the inner surface of the periosteum, and spiculæ of bone afterwards shoot into it.

Where the exostosis are cartilaginous, growing from the periosteum, they cease to increase beyond a certain extent, and usually form at the insertion of the triceps abductor magnus. You should make an incision through the integuments, cut through the muscle in the direction of its fibres, and having reached the top of the exostosis, you find the knife easily sinks into it from its being still partly cartilaginous. Then slit down the muscle on each side and remove the diseased part with saw and forceps.

When the exostosis arises from the cancellated structure of the flat bones, and the diseased surface is not large, you may get rid of it by making an incision through the periosteum covering the tumor, and then separate it further with the knife on each side, and the exostosis will be gradually discharged by the suppurative process.

Fungous.—The fungous exostosis is rather a nest of bone enveloping the fungus, than constituting the fungous itself. It grows from the medullary membrane.

Treatment.—In the treatment of the fungous exostosis, nothing can be done but palliate; the growth will proceed in spite of local and constitutional remedies.

MOLLITIES OSSIUM.

The disease thus named is intended to signify a morbid softness of the bones, which become preternaturally flexible and incapable of forming a natural support for the soft parts. This state of the bones is either the consequence of the inordinate absorption of the phosphate of lime, from which their natural solidity is derived, or else the matter not being duly secreted in this texture. The mollities ossium is an exceedingly uncommon disease, and its causes are buried in obscurity. It is supposed, however, to depend upon some peculiar state of the constitution, and the individuals attacked with it have been remarked to be most about or rather beyond the middle period of life, and generally, if not always, women. Your indications of treatment should be to alter and invigorate the system at large, and to palliate such symptoms as are under your control. You should give the phosphites, or hypophosphites of lime, soda and iron, to supply the deficient element. In this way a cure is readily effected if taken in the early stage.

SYNOVITIS.

Inflammation may affect the synovial membrane of a joint by extending to it from some of the other textures of which the joint is composed, or that it may have its origin in the membrane itself.

No period of life is altogether exempt from this disease ; it very seldom attacks young children ; becomes less rare as they approach the age of puberty, and is very frequent in adult persons. This is the reverse of what happens with respect to some of the other diseases to which the joints are liable ; and a knowledge of these circumstances will be found of some importance to the surgeon in assisting him to form a ready diagnosis.

Symptoms.—Pain in the joint, confined to one spot ; the pain usually continues to increase during the first week or ten days, when it is at its height. In the course of one or two days after the commencement of the pain the joint may be observed to be swollen, At first the swelling arises entirely from a preternatural collection of fluid in its cavity. In the superficial points the fluid may be distinctly felt to undulate when pressure is made alternately by the two hands placed one on each side. When the inflammation has existed for sometime, the fluid is less perceptible than before, in consequence of the synovial membrane having become thickened, or from the effusion of lymph on its inner or outer surface ; and in many cases where the disease has been of long standing, although the joint is much swollen and symptoms of inflammation still exist, the fluid in its cavity is scarcely to be felt. As the swelling consists more of solid substance, so the natural mobility of the joint is in greater degree impaired. The swelling arises chiefly from the distended state of the synovial membrane, and hence its figure depends in great measure on the situation of the ligaments and tendons, which resist it in certain directions and allow it to take place in others. Thus, when the knee is affected, the swelling is principally observable on the anterior or lower part of the thigh, under the extensor muscles where there is only a yielding cellular structure between these muscles and the bone. In the elbow the swelling is principally observable in the posterior part of the arm above the olecranon and under the extensor muscles of the forearm ; and in the ankle it shows itself on each side in the space between the lateral ligaments and the tendons, which are situated on the anterior part. In like manner in other joints, the figure of the swelling, whether it arises from fluid alone or joined with solid substance, depends in great measure on the ligaments and tendons in the neighborhood and on the degree of resistance which they afford ; and these circumstances, though apparently trifling, deserve our attention, as they enable us more readily to form our diagnosis. In the hip and shoulder the disease occurs less frequently than in the superficial joints, and here the fluctuation of the effused fluid is not perceptible, but the existence of swelling is sufficiently evident beneath the muscles. Where the shoulder is affected there is pain accompanied with a general tumefaction of the part ; and, in most instances, if the hand be placed upon it at the same time that the limb is moved, a crackling sensation is observed which probably arises from an effusion of fluid

into the cells of the neighboring bursæ. When inflammation attacks the synovial membrane of the hip, there is an evident fullness of the groin, and in some instances of the nates also. There is pain, which is referred, not to the knee as in cases of ulceration of the cartilages, but to the upper and inner part of the thigh immediately below the *abductor longus* muscle. The pain is aggravated when the patient stands erect and allows the limb to hang without the foot resting on the ground. It is also increased by motion, but not by pressing the articulating surfaces against each other so that it does not prevent the weight of the body being borne by the affected limb. After inflammation of the synovial membrane has subsided, the fluid is absorbed, and, in some instances, the joint regains its natural figure and mobility, but in other cases stiffness and swelling remain.

Causes.—Inflammation of the synovial membranes may take place as a symptom of a constitutional affection, where the system is under the influence of gout or rheumatism; where it is disturbed by the operation of the syphilitic poison; where mercury has been exhibited, or in large quantities, and under a variety of other circumstances. Sometimes it attacks several joints at the same instant, and even extends to the synovial membranes, which constitute the bursæ mucosæ and sheaths of the tendons. At other times it leaves one part to attack another, and different joints are affected in succession. It is likely to leave the joint with its functions more or less impaired and occasionally terminates in its total destruction. Inflammation may take place in the synovial membranes in different degrees of intensity, but for the most part it has the form of a chronic or slow inflammation, which, while it impairs, does not altogether destroy the functions of the joint.

Treatment. In acute synovitis, you will pursue the same general course as directed for inflammation of other parts.

We should at the same time endeavor to remove the cause.

If a result of rheumatism, then the treatment directed under that head. If of scrofulous origin, then build up the system and proceed as in other forms of scrofula. In most cases we shall find alteratives indicated. In ordinary chronic synovitis we should give syr. iris versicolor comp. one tablespoonful three times a day before meals. Alternate with :

℞—Fld Ext. Alnus Rub.....	aa.
“ “ Xanthoxylum	3 ss.
“ “ Cimicifuga	5 j.

Dose.—Thirty drops three times a day—say half an hour after meals. Locally:

℞—Iodide Potass.....	aa.
Muriate Ammonia	3 j.
Aqua.....	3 viii.

Keep a cloth saturated with this lotion constantly applied and cover with oil silk to prevent too rapid evaporation. We may vary the local treatment.

Where pain and swelling are great warm fomentations or poultices, or the discutient ointment. Keep the joint well bandaged; moderate exercise.

Diaphoretics to maintain action of the skin; a good nutritious diet; keep the

bowels open with gentle laxatives. The practice of blistering cannot be too strongly condemned, as it almost invariably leads to ankylosis of the joint.

Our object in treatment should be to bring about resolution and absorption without suppuration, and if properly managed this can usually be affected. The fresh root of the *Phytolacca dec.* roasted in the ashes until soft and made into a poultice will often arrest the inflammation and relieve all pain at once. When we have synovitis associated with impoverished condition of blood, then the hypophosphites, cinchona comp. a good diet, etc., will be our main reliance.

ANCHYLOSIS.

Ankylosis, or immobility, is a very frequent consequence of injuries and disease of joints.

It may be *true* or *false*.

True or *bony*, when the lymph, that is effused after an injury or destruction of cartilage, ossifies—*spurious*, when it depends on the thickening and deposits into the synovial membrane and ligaments and rigidity of the muscles. The extensor muscles are apt, in all cases where the joint is diseased, to become paralyzed and wasted, and the flexor muscles to fall into a state of atrophy, becoming short, inextensible, and very probably dislocating the joint by their continued traction.

There is also ligamentous ankylosis—the union of the two articular surfaces by ligaments—and this is an occasional consequence of compound dislocation and of ulceration of cartilage.

One very frequent cause of ankylosis is the bony immobility of the articulations; consequently it is dangerous to confine for months in an immovable apparatus the articulations of any joints.

In all cases, if possible, the joint should be left as free as possible to perform movements sufficient to induce the synovial secretion, and in all cases passive motion should be recommended early as soon as the callus is formed. Sometimes it is desirable to obtain ankylosis, especially in diseased joints, where the articulating extremities have been destroyed, and nothing can be obtained but a stiff joint.

Treatment.—Friction, salt water baths, alcoholic vapor baths to the joint, passive motion. At night apply:

R—Iodide Potass.....	aa.
Muriate Ammonia.....	3 j.
Tr. Lobelia.....	O. j.

Saturate a cloth in this, bind around the joint and cover with oiled silk. Get your patient freely under the influence of alteratives.

Motion to break up the ankylosis in this way you will often succeed much better than you will with a powerful surgical apparatus.

Other diseases of joints are described under their appropriate heads.

VERTEBRÆ.

Children of a strumous diathesis are very liable to disease of the vertebræ.

Caries is the most common variety; is seldom met with, except in those of the scrofulous diathesis. The disease sometimes commences in the substance of the bone, but more frequently about the articulation or joints. The vertebræ are more liable to take on disease than bone of more solid structure.

Symptoms.—The inflammation may get under good headway without very urgent symptoms, but where it is fairly set in we shall have, in addition to the local pain in spine, a species of spasmodic convulsion, or irritation of the cord, which may produce complete paralysis of the lower extremities.

Causes.—The exciting causes are exposure to cold or sudden change of temperature, blows or injuries, sprains or sudden jerks or twists, with over-exertion of the muscles in attempting to lift heavy weights. It often exists for a long time without our knowledge, but if the symptoms appear as laid down above, we should carefully examine the spinal process one by one.

Treatment.—We must remove the local excitement as far as possible and correct the constitutional. To this end a good nutritious diet as recommended under the head of scrofula, and locally counter-irritants of a mild nature. Salt water baths, stimulating liniments and plasters all do good. Bathe the whole body with alkaline bath—say, one pound soda to a gallon of water. Keep the weight of the body off the spine as far as practicable. This is best accomplished by the recumbent position. Strict attention to hygienic measures will be essential to success. The best treatment, however, is prevention. Where we find a patient laboring under a predisposition to scrofula, we should not wait for local manifestations, but begin treatment at once.

WOUNDS OF JOINTS.

By a wound of a joint I mean a case where the capsular ligament is penetrated or divided. The injury is often attended with a division of the lateral or other ligaments, and sometimes also with that of the cartilage and bones. These accidents are but trivial, or very dangerous, according as the surgeon is directed by proper principles, or is ignorant of the treatment which they require. If the patient has a poultice applied, or if the utmost attention is not paid to the immediate closure of the wound, inflammation of the synovial membrane arises and supuration ensues.

The most violent constitutional irritation succeeds, shivering, heat, flushing and profuse perspiration, generally great swelling and excessive pain in the joints. Abscesses form in different parts of the joint, one succeeding another, until the strength becomes exhausted.

In young and healthy constitutions these wounds in the largest joints are readily healed, but in aged and weak persons they may destroy life. Recovery from these injuries, when inflammation has followed, is by adhesion, so as to

destroy the synovial surface, or else by granulation, when a partial or general ossific ankylosis is the result. All ill-effects from wounds of joints may be prevented by care and skillful treatment.

Treatment.—When called on to treat a wound of from one to two inches, extending into the knee-joint, you must, with a fine needle and thread, pass through the skin only, and bring the edges of the external wound together. Adhesive plaster should not be placed immediately on the aperture, as it is apt to separate and prevent union. You should therefore dip some lint in a solution of carbolic acid, put it over the surface of the wound, and place the plaster over it, then cover the surface of the knee with soft linen, dipped into a lotion of arnica. Afterward the limb is to have a splint placed behind it to prevent all motions of the injured joint, and to secure perfect rest.

Your after treatment must be principally directed as the circumstances of the case may require. Purging medicine should be, as much as possible, avoided, and a rigid abstinence enforced. In eight days the threads may be cut and drawn away, but the adhesive plaster and lotion should be continued. Three weeks should elapse before the patient be allowed to quit the bed. If inflammation and suppuration should follow a wound into the joint, the ordinary remedies must be employed. In the former arnica lotion should be used, and if the inflammation run high, diaphoretics and stimulants. If the suppurative process be produced, fomentations and poultices are required locally, and the following internally :

R.—Fld. Ext. Lactuca.....	3 j.
Syr. Rhei et Potass	3 iv.

Dose.—One tablespoonful every three hours.

I would also have you remember that the fungous granulation which forms at the wound is not to be disturbed, as it is formed by nature to close the aperture. When a limb is stiff from inflammation and adhesion, early motion of the joint is required, and its use may generally be restored. A joint thus circumstanced is not injured, but benefited by motion, whilst in a chronic or scrofulous inflammation of a joint rest is more essential to its cure. In this case, therefore, a patient should not only use the limb in common exercise, but he should sit upon a high table and employ the muscles for some length of time at once in flexing and extending the limb.

In removing loose cartilages from joints, it is proper first to draw down the skin to render the aperture valvular.

Operation.—The cartilage is fixed by an assistant; an incision is made over it after the skin has been drawn an inch to one side; then as soon as the surface of the cartilage is well exposed it jumps from its situation; the skin is let go and no direct opening remains communicating with the joint.

The after treatment is the same as in simple incised wounds, only a suture is not required.

DISEASES OF THE MUSCLES AND THEIR APPENDAGES.

MUSCULAR DISEASES.

Atrophy, or wasting of the musclés, may be due to two opposite conditions—over-work or inactivity ; too much use or not enough. The defect is the same in both cases—a want of renewal. In over-work this want of renewal is from sheer exhaustion, and in inactivity no surplus muscular substance is laid up, and in both cases degeneration or atrophy is the result.

Symptoms.—The symptoms of atrophy are soft, friable muscles, pale and destitute of contractile power. There is a lack of elasticity in the movement ; the muscles shrink, and if neglected, this gradually increases until the whole muscular fibre is wasted and we have a fatty substance instead. It is sometimes a part of the disease known as fatty degeneration.

Progressive atrophy is generally due to injury of the nerves or exhaustion ; it may have its origin in pressure, bruises, strains. In acute cases the pain is severe. Atrophy of the muscles can often be traced to the rheumatic diathesis, with exposure to cold, etc.

Treatment.—The constitutional treatment should be such as will build up the whole system.

R —Tr. Cinchona Comp .....	... ʒviii.
Nitro Muriatic Acid.....	ʒj.
Syrup Simplex	ʒvii.

Dose.—One teaspoonful three times a day.

R —Fld. Ext. Cimicifuga.....	ʒj.
“ “ Xanthoxylum.....	aa.
“ “ Serpentaria.....	ʒss.

Dose.—Twenty to thirty drops in sugar and water three times a day.

When we have much pain at night give :

R —Fld. Ext. Scutillaria.....	aa.
“ “ Lactuca.....	ʒj.

Dose.—Twenty to thirty drops just before retiring.

Locally, electricity, salt water bathing, alcoholic baths, and if we have any suspicion of inflammation, counter-irritants to the affected muscles. Friction and electricity are splendid in all cases of wasting of the muscles. Being a debility of muscles, it requires a building up treatment.

MYALGIA.

Pain of the muscular system without inflammation, or other well defined symptoms of disease, is often met with. It is a kind of disease a patient lays before his physician; the physician doubts his veracity and the patient doubts his physician's ability; he feels the pain, cannot show the sign, and so both are mistaken in part. It sometimes arises from fatigue; you find children, who have walked far or played all day, suffer so intensely they cannot sleep at night. It is also met with in affections of the blood, scurvy, cancer, etc.

Debility and fatigue are the principal causes. These pains are always independent of the course of the nerves, aggravated by depressing influences. All agents calculated to raise the standard of vitality will do good.

Treatment.—Rest is all important; tonics, nourishment, etc., meet the indications of most cases. The treatment directed in the preceding article; and to the affected muscles apply:

℞—Tr. Arnica.....	}	aa.
“ Hyosciamus.....		
“ Aconite.....		
“ Belladonna.....		
Chloroform.....		3j.

Shake well; rub in or apply on flannel. Hot salt water bath is valuable.

STRAIN.

A strain is a violent stretching of tendons or ligamentous parts, with or without rupture of some of their fibres. It produces instantly severe pain, latterly tumefaction ecchymosis, with subsequent weakness and stiffness. The most essential measure in treatment is perfect rest, and to secure this, if the strain is at all violent or serious, confine the part with a splint. If convenient, irrigation should be resorted to; if not, cold or warm lotions, according to the feelings of the patient. If the inflammation runs high, or a large joint is affected, then other measures must be resorted to, as the exhibition of asclepias and serpentaria, acting upon the secretions, and applying that invaluable remedy, tincture arnica, to the sprain. Nothing alleviates the pain so much, nothing prevents ecchymosis, thickening, extravasation, so well. Salt and vinegar is a good application to prevent inflammation, muriate of ammonia and iodide of potass. in the form of a lotion, friction, stimulating liniments, moderate exercise, bandages, especially the flannel bandage, fomentations with bitter herbs or steaming with vapor of alcohol, and other remedies directed for inflammation of joints, should be resorted to.

ACUTE AND SUBACUTE INFLAMMATION OF FASCIA.

Inflammation of the tendonous sheaths of muscles, designated thecal abscess, or tendonous whitlow.

Both forms are attended with severe, tensive throbbing pain, exquisite tenderness, tense and resisting swelling, constitutional disturbance.

If not arrested it leads to suppuration.

Treatment.—A saturated tincture of lobelia I have found of great value; also applying muriate of ammonia or poultices of iris versicolor.

If these and like remedies fail, free incisions, the application of an alkaline poultice, free secretions, and afterwards tonics will be appropriate, acting freely on the liver and bowels.

TUMORS ON TENDONS AND LIGAMENTS.

From severe exercise or friction small tumors are very apt to form on tendons. If not troublesome or inconvenient, they may be left to themselves; but if painful or irritable, friction, discutient ointment should be employed. Chalk-stone tumors, composed of lithate or urate of soda—a white insoluble substance, which is frequently deposited from the blood in rheumatic or gouty patients. These tumors sometimes remain dormant through life; sometimes they inflame the skin and discharge large quantities of concretion. Locally they are best treated with an alkaline lotion; internally with iodide of potassa in an alterative syrup, the sulphites, etc.

BURSÆ AND ITS DISEASES.

The simplest form of disease is the bursæ, and synovial sheaths of tendons is an increase of synovia, and consequent tumefaction, to which the name of ganglion is given. A ganglion then contains clear synovia, forming an indolent, fluctuating, transparent tumor, different from the swelling, which constitutes a bunion, as the latter does not contain synovia, but a viscid, semi-fluid substance. The ordinary situation of ganglion is that of the various bursæ. When chronic the synovial membrane becomes thickened and the contained fluid turbid, mixed with flakes of lymph, and the tumor loses its transparency. The usual cause of ganglion is a twist or sprain, irritation from pressure or friction.

Treatment.—Ganglions are the result of inflammation, and cause great inconvenience.

A good mode of treatment is to puncture them and keep the part at perfect rest. If the fluid is thick and will not flow, enlarge it sufficiently for that purpose.

In all operations on ganglion it is only necessary to make a small opening,

and rely upon our alteratives and absorbents. Effusion into the bursea patella is the most common form known familiarly as the house maid's knee. It is an affection that is amenable to treatment. If, after puncturing, the bursæ does not granulate, the application of a minute quantity of nitric acid will have the desired effect.

WOUNDS OF TENDONS.

1. The division of the *tendo-Achillis* is most frequent, and is usually occasioned by a wound from an adze, or from a scythe. In whatever way it has been divided, there is a sudden inability, or, at least, an extreme difficulty, either of standing or walking. Hence the patient falls down and cannot get up again; besides these symptoms there is a very palpable depression between the ends of the tendon, which depression is increased when the foot is bent, and diminished, or even quite removed, when the foot is extended. The principle in the treatment is to approximate the ends of the tendon by raising the heel, extending the foot, and bending the knee; the external wound, if there is one, is then to be carefully brought together by a small suture, in order that it may be healed by the adhesive inflammation. To effect this object a shoe, with a heel one inch and a half in height, is to be placed on the foot of the injured limb, and a strap is to be carried from the heel of the shoe to the calf of the leg, then a roller is to be lightly applied upon the upper part of the leg to confine the strap and keep the foot extended. All pressure at the part should be avoided, only arnica lotion being placed over it. The patient is to be confined to his bed until the wound be healed, and then he may be allowed to walk a little with a high-heeled shoe, the heel of which is gradually to be lowered until it is even with the heel of the other shoe.

Should much inflammation arise during the cure, the limb must be elevated to prevent all gravitation of blood, and arnica lotion should be applied.

2. A rupture of the tendon of the extensor muscles of the leg requires nearly the same kind of treatment as a fracture of the patella.

However, pressure exactly on the wounded part of the tendon should be avoided; the limb should be kept extended and somewhat raised; a bandage might be put round the thigh; diaphoretics and diuretics may be given. In the course of two or three weeks, the surgeon should cause the joint to be very gently moved without any muscular exertion on the part of the patient himself.

3. If the tendon of the *triceps extensor cubiti* be divided, the limb is to be kept straight; cold applications for a few days, and, if necessary, the same internal treatment adopted. I would here observe, it is only necessary to consider whether the divided tendon, in any case, belongs to a flexor or extensor muscle to know what is to be done to assist its union.

LACERATED TENDO-ACHILLIS.

Many tendons are liable to be lacerated by the violent action of muscles with which they are attached; but more particularly the tendo-Achillis, and may be either complete or partial.

The same directions as just delivered are also applicable in the present case.

COMPLETE LACERATION.

This accident to the tendo-Achillis is produced either by a violent effort of the muscles, as in jumping and dancing, or by an unexpected extension of the tendon. In whatever way the accident may be produced, the treatment required will be to extend the foot and bend the knee to allow the ends of the lacerated tendon to approximate. In this way the tendon soon unites by the adhesive process, and the use of the limb is afterwards gradually restored.

Some degree of the thickening of the tendon for a long time remains, and the patient halts a little in rapid motion. The position of the foot and leg is to be maintained in the same way as when the tendon is divided by incision and an arnica lotion should be employed. After the union the same precautions are to be observed with respect to the use of the high-heeled shoe.

PARTIAL LACERATION.

A partial laceration of the tendo-Achillis and gastrocnemius muscle is an accident of very frequent occurrence. A person, in running or walking fast, or if his foot slip backward when it has been advanced, sometimes feels as if he had received a severe blow upon the back of the leg, and is immediately unable to walk but with the greatest difficulty, and with the foot extended. The cause of this feeling is a laceration of some fibres of the tendo-Achillis, or of the gastrocnemius muscle, where it joins the tendon. There is great tenderness upon pressure on following day, with some ecchymosis, which daily increases until the limb becomes considerably discolored. The least attempt to bend the foot is accompanied with great pain and followed by swelling of the leg and ankle. A similar treatment to that recommended for division or laceration of the tendon is requisite for the cure of this injury. When the patient can bend the foot without pain, then the high-heeled shoe must be worn, and the heel gradually be lowered as in previous cases. From three to six weeks are required to effect a cure.

DISEASES OF THE PERSPIRATORY SYSTEM— THE EXTERNAL COVERING OF THE BODY.

DISEASES OF THE SKIN.

A great variety of affections are comprehended under the head of *chronic cutaneous diseases*. Expanded, as they have been by some authors, into a nosological system, and each made the subject of distinct investigation, it may appear impossible, consistently with the design of this work, to enter upon a discussion of them with any prospect of advantage to the student. I am indeed fully sensible that in acquiring a knowledge of these affections, attention to detail is requisite. Still it behooves the student to know that there are certain general principles which connect all the chronic diseases of the skin together, and link them in with the great chain of constitutional disorders. To point out these, although in a very summary manner, may possibly be useful. I shall attempt further to direct the attention of the reader to the leading *natural* divisions of chronic cutaneous disease, hoping thus to lay before him the elements of a study which the detailed description of authors may hereafter assist him in pursuing, but a complete knowledge of which can alone be attained by constant attention and extensive opportunities of observation. Considering the diversity in the aspects of chronic cutaneous disease, there is less variety than might have been expected in their *exciting* causes. They may be distinguished into such as operate *generally*, and such as act through the medium of the skin itself.

1. In the first class may be ranked a poison in the system. This is very often the poison of the system which, in common with other secondary effects, produces every possible variety of *cutaneous* disease. At other times the poison is that of mercury. Hence it is that cutaneous eruptions constitute so important a part of that complaint to which modern pathologists have given the title of *secondary syphilis*. Sometimes the poison is of a more familiar kind, such as shell fish, bitter almonds, and other indigestible articles of diet, the influence of which, however, is only partial and transitory.

2. The next source of cutaneous disease is simple debility. To this we attribute the cutaneous eruptions bearing the character of *ecthyma* and *rupia*, which are observed in persons convalescent from tedious diseases, very remarkably in those who of a naturally scrofulous habit are recovering from confluent small-pox. Closely allied to it is the state of *cachexia*, or that depraved habit of body which is the consequence of bad food, improper habits, want of air and exercise, irregular hours and modes of living. It has been conjectured that the *blood* becomes altered in its qualities in these cases, loaded perhaps with saline particles, and irritating the cutaneous capillaries produces different varieties of

eruption. This was a favored doctrine of the humoral pathologists, and many strong arguments might still be adduced in support of it. Although but little talked of in modern times, it preserves its influence on practice, as will be apparent by considering the extensive use now made of the alterative syrups.

3. A weakened or cachectic stato of the system is not, however, the only one in which chronic cutaneous disease occurs. In some instances there is a degree of plethora present. In the language of the old humoral pathologists, the blood is too rich, and stimulates the vessels through which it passes. This is particularly observable in the pustular eruptions to which young persons are subject about the age of puberty, *acne simplex* and *acne punctata*.

4. A disordered state of the stomach and bowels is one of the most common causes of chronic cutaneous disease. Sometimes this consists merely in the lodgment of crudities in the alimentary canal. At other times, the presence of acid in the stomach appears to be the direct occasion of the cutaneous affection. Hence the use of purgatives and of absorbents in the chronic diseases of the skin. Chronic cutaneous disease is sometimes observed in combination with symptoms denoting disorder of the thoracic viscera.

5. Lastly, I have seen a few cases, which point to a connection between *lepra* and an affection of the brain and nervous system. I am well convinced that a disordered state of the cerebral functions has given rise to *erysipelas*, and I have therefore no difficulty in imagining that the same principle may possibly operate more extensively in the production of cutaneous disease. Besides these *general* causes of cutaneous affection, there are others whose influence is very extensive, which may be referred more immediately to the skin itself. The first I shall notice is a peculiar *irritability* or delicacy of the skin. This is the probable cause of those numerous cases of *strophulus* which occur in infants, whose skin is as yet unaccustomed to the stimulus of air and soap. This irritable state of the skin often exists through life, and hence it is that leeches and blisters produce in such habits very unpleasant effects. It is in some instances *hereditary*. The principle appears to be one of very general application in the pathology of cutaneous complaints.

The next cause of cutaneous disease which requires attention is want of cleanliness. It is doubtless on this account that obstinate cutaneous affections are so much more common among the lower than the higher classes of society. Hence the great value of warm alkaline baths in their treatment.

The third is local irritation. Its influence in the production of cutaneous disease is generally acknowledged, and is indeed very extensive. The principle is fully shown in the common effects of blisters, plasters and antimonial lotions; but it is chiefly exemplified in those eruptions which follow the long continued stimulus of the sun's rays, of flour, sugar, lime or soap, constituting some of the species of *eczema* and *psoriasis*.

The last source of chronic cutaneous disease which I shall notice is contagion. There are not many cases, however, to which it applies. *Psora* and *tinea capitis* are perhaps the only unequivocal proofs of it which can be adduced.

In laying down a few general principles applicable to the treatment of these affections, I must first advert to the necessity of distinguishing them according

as they are constitutional or local. Chronic cutaneous diseases may, in fact, be divided into two classes, such as implicate the constitution to a greater or less degree, and such as are decidedly local, arising from local causes, remediable by local means, and in the ordinary course of events not influencing the system at any period of their progress.

There is a foundation in nature for this distinction, but in other respects these two classes of disease are two intimately connected to make it possible to discuss them separately.

In practice, however, it must be remembered that where the disease is essentially local, topical remedies are required. On the other hand, where the constitution is in fault, local measures are of little or no avail. It is true, that in the treatment of the latter kinds of cutaneous disease we are often glad to have recourse to local means (even though their influence be but temporary), for a large proportion of such affections are unaccountably obstinate.

Further, an attempt should always be made, in the first instance, to determine the cause of the complaint; for this, if successful, will at once point out the proper remedy.

When the origin of the disease cannot be ascertained, the general system is to be looked to, and according as a state of fever, of cachexia, of debility, or plethora, be present, remedies are to be employed adapted to the circumstances of the case. Attention is to be paid, in the third place, to the functions of the brain, the heart, the stomach, and the bowels, and any irregularities in them corrected by appropriate means.

Lastly, the state of the skin is to be accurately examined with a view to determine whether the superficial vessels are *irritable*, requiring *soothing* medicines, or in that state of *torpor* which will be benefited by *stimulating* applications.

The constitutional remedies applicable in cases of chronic cutaneous disease are purgatives, absorbents, tonics, alteratives, febrifuges, diaphoretics, such as exert a peculiar effect upon the vessels of the skin. This class of drugs will naturally be resorted to whenever we fail in detecting some obvious cause for the complaint; and they ought frequently to be varied until we find one that fulfills our expectations. Those which experience has shown to be the most efficacious are iris versicolor, dulcamara, serpentaria, stillingia, the hypophosphite comp., sulphite of soda and magnesia.

Among the local applications I have found of advantage in skin disease, I may mention, first, alkaline baths. These will be found valuable in nearly every class of skin disease. Second, sulphur baths, alcoholic vapor bath. We may combine the alkaline and sulphur by using sulphur soap, dry starch, or wheaten flour.

Lotions of glycerine, carbolic acid, and rose water, decoctions of larkspur seed or herb; the leaves of the scuppernong grape or muscadine.

Solutions.—Ferri sulph., chloride sodium.

Ointment.—Zinc ointment, iodoform ointment, ointment of myrica wax, Venice turpentine ointment, whale oil, soap, etc.

A brief sketch of the principal varieties of chronic cutaneous disease will conclude the view which I proposed to take of this subject, and complete at

the same time the design of the present work. I shall divide diseases of the skin into ten orders.

These are determined by the appearance of the eruption in its most perfect state.

It is true, the cutaneous appearance of one day may be entirely changed the next, papular and pustular vesication and tubercular passing insensibly from one to another state. There is a great variety of constitutional symptoms, and the nature and appearance of the local symptoms vary according to habit, temperature, etc.; nevertheless, the following is about as good a classification of skin diseases as I have ever met with. Some of them are usually described under febrile or constitutional disease, and a number here mentioned have already been discussed under appropriate headings. These we have distinguished by italics :

ORDER I.

Papulæ (Pimples).

PAPULAR ERUPTIONS.

Genus.

Strophulus,

Lichen,

Prurigo.

ORDER II.

Squamæ.

SCALY ERUPTIONS.

Lepra,

Psoriasis,

Pityriasis,

Ichthyosis,

ORDER III.

Exanthemata.

EFFLORESCENCES.

*Rubeola,**Scarlatina,*

Urticaria,

Roseola,

Erythema.

ORDER IV.

BULLÆ.

Erysipelas,

Pemphigus,

Pompholix.

ORDER V.

Pustulæ.

PUSTULAR ERUPTIONS.

Impetigo,

Porrigo,

Ecthyma,

Variola.

ORDER VI.

Vesiculæ.

VERSICOLOR ERUPTIONS.

*Varicella,**Vaccinia,**Herpes,**Rupia,**Miliaria,**Eczema,**Aphitra.*

ORDER VII.

Tubercular.

TUBERCULAR ERUPTIONS.

Phyma,

Verruca,

Molluscum,

Vitiligo,

Acne,

Sycosis,

Lupus,

Elephantiasis,

Frambesia.

ORDER VIII.

MACULÆ (Spots).

Ephelis,

Nævus,

Spilus.

ORDER IX.

HEMORRHAGIC.

*Purpura.**Scurvy.*

ORDER X.

PARASITÆ.

Tinea Tonsurans,

Tinea Favosa,

Tinea Decalvan,

Tinea Sycosis,

Plica Polinica,

Closma,

Scabies.

We will now take these up in the regular order and notice each one separately, as their importance demands.

ORDER I.—PAPULÆ.

STROPHULUS.

Strophulus is the earliest form of chronic cutaneous disease ever observed. It comprises several papular affections peculiar to infants, and known by the name of *red gum* and *tooth rash*. The affection is attributable to the very vascular and irritable condition of the skin in infant life. It occurs in young infants mostly on the head, neck, shoulders and arms; when the pimples are florid and mixed with red patches, it is called red gum; occasionally yellow vesicles, as in the violent form of prickly heat, appear and terminate in scurf. As it is often connected with a weak and irritable state of the bowels and indigestion, and if repelled, bowel complaints ensue, it is necessary to avoid exposure to a draft of air, or to use the cold bath. In general cleanliness is only requisite. If the eruption be repelled, a warm bath reproduces it, and dissipates the affections which are its consequences. The white form (*strophulus albidus*) differs only in the color of the pimples; the (*strophulus confertus*); rank red gum or tooth rash appears during dentition and has no peculiarity worthy of notice; the *strophulus volaticus* is the same disease attended with fever; the *strophulus caudicus*, white and large pimples, like prickly heat in all its forms; they require no treatment but moderate and cooling diet, with occasional laxatives.

LICHEN.

A disease much more frequently mistaken for the genuine exanthemata is *lichen*, and in some cases the diagnosis is by no means easy. The characteristics of this affection are to follow. Lichenous eruption is papular, of a reddish color inclining to purple, and exhibits in many instances the crescentic forms of measles. It is in clusters, and for the most part very copious about the hands and bending of the wrists and elbows. It never advances to the formation of vesicles, but terminates generally, at the end of three or four weeks, by slight desquamation of the cuticle. There is considerable variety, however, in the progress of lichenous eruption as well as in the symptoms accompanying it. In many cases the constitution appears quite unimpaired; at other times severe febrile symptoms have been observed to usher in the disease, and to attend it for four or five days. There is always unpleasant tingling and itching of the skin in lichen, increased by the warmth of the bed, and whatever else determines the blood with unusual force to the surface. It is not a contagious disease. It is taken indiscriminately by those who have, and those who have not passed through measles and scarlet fever. Eruptions of a lichenous character arise from various causes: sometimes from the heat of the atmosphere (constituting *lichen-tropicus* or the prickly heat of hot climates), sometimes from the venereal

poison, but more frequently still, in this climate at least, from circumstances ill defined or altogether unknown. The disease being wholly devoid of danger, it may often be left to follow its own course, but saline aperients, unstimulating regimen, are plainly indicated. The warm bath is recommended, and also tonics when the rash has disappeared. Give :

R—Sulphite Soda.....	aa.
“ Magnesia	ʒ j.
“ Aqua.....	ʒ viii.

Dose.—One teaspoonful in a wineglass of water three times a day. Locally, a bath of sulphur soap, and when the irritation is great apply :

R—Glycerine ...	aa.
Aqua Rosæ.....	ʒ ij.
Zinc Sul	grs. xx.

Apply with a soft sponge.

The varieties of this disease described by authors are the lichen-tropicus or prickly heat ; the simple (simplex) that which occurs in patches (circumscriptus); that which has a hair growing from the centre of each pimple (pilaris); the more violent form attended with fever or the (agrius) to which the above treatment applies. These distinctions arise out of formal and not essential characteristics, and are therefore not worthy of notice.

PRURIGO.

Prurigo is a papular disease resembling in its external characteristics lichen; but it is of a more chronic nature, and it is further distinguished by the excessive and uncontrollable itching which attends it. It differs from psora in the circumstance of its never advancing to vesicle or pustule.

Prurigo is in general *partial*—the generative organs and the back being its most usual seats. It often proves to elderly persons a most formidable ailment, interfering with every enjoyment in life.

Prurigo is sometimes attended with a sensation as if ants were creeping over or biting the skin (prurigo formicans). The pimples are so minute as to be scarcely seen, and, owing to the irritation of scratching, are covered with scabs. It (prurigo formicans) sometimes terminates in a pustular affection like the running tetter (impetigo) showing the difficulty of establishing the precise specific difference in these diseases. Sometime headache, sickness and pain of the stomach precede its appearance or follow its repression; it then is the result of some constitutional disorder, and appears commonly in persons of a sallow complexion who are troubled with visceral disease.

Fish and stimulating animal food; wine and spirituous liquors taken immoderately, produce it; white wine has also excited it in some peculiar habits. It is not contagious, nor does it always depend upon insects. It is most troublesome in spring, the beginning of summer, and is increased on going to bed or standing before a fire. An eruption resembling this disease is produced by

handling animals affected with the mange. It generally attacks old, but is never severe in young persons.

Treatment.—In the treatment of prurigo our first efforts should be to get up a thorough action of the liver and bowels ; for this purpose :

R—Podophyllin	grs. xii.
Leptandrin	aa.
Sugar of Milk.....	grs. xxiv.

Triturate well and divide into twelve powders ; give one every second night.

R—Syr. Iris Versicolor, Comp.....	§ xv.
Fld. Ext. Serpentaria.....	§ j.

Mix. Dose.—One teaspoonful three times a day. Locally, a warm alkaline bath and a lotion of the seed or herb of delphinium (larkspur). Make a strong decoction and apply twice a day. Should this fail, then try the nitro-muriatic acid bath.

Ointments are worse than useless.

The above line of treatment, with a good, nutritious diet, will overcome the disease in due time.

You should remember that all skin diseases are obstinate and prone to run a chronic course, and prurigo is especially so. When prurigo attacks the verge of the anus, there is more moisture about the anus than usual ; a glutinous, irritating fluid is secreted from the folds of the rectum, and after the perineum is abraded by the scratching, a serous secretion takes place, which substitutes this troublesome symptom for smarting and tenderness. Where this form is constitutional, alteratives and tonics may be resorted to ; but if it be local, it should be recollected that the most approved experience justifies the idea that it is dangerous suddenly to suppress it. Those remedies, therefore, which correct the diseased secretions should be selected, and not those which from their sedative and astringent nature have a tendency to repel them. Accordingly, to produce this effect, a lotion of sulphite of soda applied to the part, with a light diet and saline purgatives, are the most uniformly beneficial. The lotion may be applied by introducing a pledgit of lint into the rectum and wetting the adjacent parts with it at the same time. This plan, continued for a few days, so as to keep the folds of the rectum free from irritating secretions, relieves the disease. In cases of longer standing the myrica and hydrastis lotion should be used :

R—Fld. Ext. Myrica.....	aa.
“ “ Hydrastis.....	§ j.
Aqua.....	o j.

Apply on lint.

When this disease occurs upon the prepuce, frequent ablutions and sulphite of soda lotion relieve it ; at the extremity of the urethra, it indicates disease of the bladder ; in women, this form of it is frequently relieved by the use of bougiés. When it attacks the pudendum, the irritation is sometimes so great as to produce nymphomania. In such cases use the myrica and hydrastis lotion, as above.

ORDER II.—SQUAMÆ.

LEPRA.

This is the most obstinate and inveterate of all the curable skin diseases. It is a non-contagious squamous eruption, consisting of red, scaly patches, circular in form and scattered over the whole body; prone to appear near the joints, knees and elbows. The patches extend and sometimes spread over the whole trunk. There are three varieties of lepra:

Lepra Vulgaris.—When the patches are small, round, red and covered with white scales.

Lepra Alphoids.—When the eruption is small, white and of long standing.

Syphilitic Lepra.—When it is a result of syphilis; in these cases it is copper-colored.

Lepra may be hereditary, or it may arise from imperfect ventilation, filth, want of bathing, any of the depressing passions, bad diet.

Once established it is undoubtedly one of the most obstinate diseases to get rid of, and our treatment must be directed to removing the cause.

Treatment.—In all cases of lepra we have an impoverished condition, or breaking down of the red principle of the blood.

The indications then are to act on the organs of nutrition or assimilation, and to this end we would advise a good, nutritious diet and blood tonic. The syr. hypophosphit. comp. three times a day with:

R—Fld. Ext. Iris Versicolor.....	aa.
“ “ Sanguinaria Can.....	
“ “ Alnus Rub.....	ss.
“ “ Rhus. Glab.....	

Dose.—Twenty drops three times a day.

Avoid all acids or any drink that has a tendency to acidity. Keep the bowels soluble by small doses of podophyllin and leptandrin, say one-half grain of the former and one grain of the latter at night.

R—Fld. Ext. Dulcamara.....	ss j.
“ “ Taraxacum.....	ss ij.
Nitro-Muriatic Acid.....	ss l.
Alcohol.....	ss ij.
Syrup.....	ss x.

Dose.—One teaspoonful three times a day. Where we have an extreme anæmic condition the syrup of hypophosphite comp. will be found one of our best combinations. Cod liver oil is a favorite with some, where there is great emaciation. It may be given in a tablespoonful dose three times a day, so long as it agrees with the stomach.

Should the above line of treatment fail, then more active alteratives as:

R—Syr Stilligia Comp.....	ss xiv.
Fld Ext Dulcamara.....	ss j.
Iodide Potass.....	ss vi.

Dose.—One teaspoonful three times a day.

Lepra Alphoids is simply a long continued case of *lepra vulgaris*, and requires the same line of treatment as above.

Lepra Syphilitica is but a manifestation of constitutional syphilis, and must be treated as directed under that head, giving attention to baths, diet and perfect hygiene. Syrup iodide of ferri is excellent where we have an anæmic condition in the syphilitic variety.

The local treatment consists of warm baths, nitro-muriatic acid, one-half ounce of the acid to a gallon of water; use as a bath three times a week. Carbolic acid and glycerine as a lotion is good.

Remember, of all the obstinate skin diseases, this class is among the worst, if not the worst, and requires a chronic treatment to effect a cure. No line of treatment, no difference how much skill is brought to bear, will prove successful unless persevered in.

PSORIASIS.

Psoriasis is closely allied to lepra, both in its appearance and general pathology. It chiefly differs from lepra in the *irregular* shape of the patches, being slightly raised above the level of the skin, and their being frequently accompanied by *rhagades*, or fissures of the skin. Psoriasis is not less difficult of cure than lepra. It is sometimes benefited by the application of dilute citrine ointment, and I have derived some advantage from the internal use of sulphur combined with the carbonate of soda; but, like lepra, it often continues, even through life, in spite of every effort of medical art.

Treatment.—Psoriasis, like lepra, is very obstinate, and requires an active, constitutional treatment. The disease may be confined to a small space, yet it is nevertheless dependent upon constitutional irritation, and must be treated with this fact in view.

Internally give syr. stillingia comp. with iodide potass.; alternate with hypophosphite comp. and nitro-muriatic acid comp.

Locally, the alkaline bath or a bath of whale oil soap, daily, and persevered in for sometime, will prove beneficial. A lotion of :

℞—Fld. Ext. Myrica Cerif.....	aa.
“ “ Trifolium.....	3 i.
Glycerine.....	3 ij.

Paint the affected part twice a day, or an ointment of :

℞.—Venice Turpentine....	3 j.
Myrica Wax.....	3 ij.
Sulphite Soda.....	3 j.
Petroleum Jelly.....	3 ij.

Melt together over a slow fire, and when thoroughly mixed, cool and rub well in over the affected part twice a day.

PITYRIASIS.

A chronic, non-contagious inflammation of the skin, attended with redness and much irritation ; scurf, white scales accumulate and are thrown off in great quantities. Dandruff may appear on any part of the body, but the scalp is most obnoxious to it.

Treatment.—Internally, some good alterative, and locally :

<i>R.</i> —Borax	℥ iii.
Glycerine	℥ iv.
Elder Flower Water	℥ viii.

Mix and rub well into the roots of the hair. Keep the hair well washed and head clean.

ICHTHYOSIS.

This is a non-contagious skin disease, consisting of a dry scale, like unto a fish scale, one connecting with another ; hence it has been called fish skin disease.

It is not attended with much redness, itching or soreness. A congenital disease, very obstinate and difficult to cure. The following is the best treatment we have :

<i>R.</i> —Syr. Stillingia Comp.	℥ j.
Iodide Potass.	℥ j.

Dose.—One teaspoonful before each meal.

<i>R.</i> —Fld. Ext. Alnus Rub.	} aa.
“ “ Iris Versicolor.	
	℥ j.

Dose.—Twenty drops after each meal.

Wash the part well with whale-oil soap, and apply :

<i>R.</i> —Bi-Carbonate Soda.	℥ j.
Aqua	℥ j.

Keep a cloth saturated with this constantly applied, using the whale-oil soap at night. Some months are required to cure it, if indeed a cure can be effected.

In the cases I have treated, I have alleviated the above with syrup hypophosphite comp. and tinct. cinchona. Ointments aggravate the trouble and should never be used.

ORDER III.—EXANTHEMATA.

URTICARIA.

It is preceded for two or three days by feverish symptoms, headache, languor, faintness, nausea, quickness of the pulse. The eruption appears in the form of white elevations of the cuticle, similar to those produced by the stinging of nettles, and denominated *wheals*. It is very itchy, with local heat and tingling; also fits or chills and shivering, especially during the night, or on exposing the skin to the air while undressing. In some instances patients even have to sleep with the clothes on to prevent its recurrence. It continues about a week, occasionally fading during the day. In children it is brought on suddenly by the irritation of teething, and at different ages by disordered states of the stomach and bowels. It occurs chiefly in summer in the sanguine and plethoric, especially after taking improper food. The pain and sickness are relieved as soon as the eruption takes place; it continues sometimes for years, but generally from one day to six weeks. Sometimes the wheals appear and disappear at short intervals; sometimes they are interspersed with small tubercles; at others they subside for weeks and appear again.

Modifications of the febrile nettle rash are induced in particular constitutions by certain articles of food, shell fish, almonds, or cucumbers. These cases are commonly attended with considerable disturbance of the stomach, languor and oppression. Honey, fruit, opium, herrings and lobsters when slightly tainted; certain fish within the tropics, as the herring and yellow gilled sprat produce it; the morbid effects are confined to no part of the fish; do not depend upon copper infiltrated into its substance as has been said, and sometimes do not appear for a day after it has been eaten. The symptoms of this form are weight and oppression at the stomach, nausea, vertigo, general uneasiness, numbness of some part of the body, constriction of the throat, a sense of heat about the head and eyes, followed by urticaria and its characteristic itching, tingling and heated wheals, with great thirst, vomiting and diarrhœa. Vinegar, citric acid and sugar taken with the fish are useful as antidotes. An emetic of lobelia comp., followed by a Seidlitz powder or citrate of magnesia, is all that is requisite in the treatment of the common febrile urticaria. The fld. ext. serpentaria, fifteen to thirty drops once in three hours, will relieve recent cases. In chronic urticaria give :

℞—Syr. Stillingia Comp.....oj.
Iodide Potass.....5 vi.

Dose.—One teaspoonful three times a day. When obstinate an entire change of the mode of living, change of air, with salt water baths is the best plan. In old cases some one article of diet offensive to the stomach is found to be the cause. It must be discovered by leaving off one by one the different accustomed articles of food. As fainting occurs generally where the eruption recedes it is impor-

tant to reproduce it ; for this purpose the warm bath, *serpentaria asclepias* are the best remedies.

Several species of this disease are noticed by authors as the *perstans* or persistent, the *coalescing* or *conferta*. The difference is merely in form. Alkaline baths are useful all the way through.

ROSEOLA.

This is a disease somewhat resembling measles, but it is really a true inflammation of the skin, characterized by a transient, irregular patch of red appearance and distributed over the whole body. It usually terminates in about a week.

Treatment.—Give thirty drops of fluid extract *asclepias* every two hours ; sponge the body well with alkaline baths, say one-fourth pound of soda to five gallons of water. Give a warm infusion of sage, balm or ginger root in sufficient quantities and keep the patient from cold or damp.

ERYTHEMA.

This is more a symptom than a disease, as there are quite a number of conditions to which the name is applicable. It is generally used to describe conditions where we have a diffused redness of the skin, circumscribed but not confined to regular sized patches, smooth to the touch ; most common to face, chest and extremities. Its duration varies from one to two weeks, but if improperly treated we may have ulceration and a chronic form follow. It is usually preceded by heat and cold, depression, mal-assimilation, heat, burning, tingling, redness in the afflicted part. We have erythema subdivided into several varieties depending upon the cause :

Erythema simplex, from derangement of stomach and duodenum.

Erythema solaris, from the heat of the sun.

Erythema fugax, from its fleeting or flying nature.

Erythema ædruetum, when it is developed on the lower extremities.

Erythema traumatic, when it arises from poison of garters, stays, trusses, pads, straps, etc.

Most of these are but temporary and pass off with removal of cause. Erythema is intimately associated with an acid condition of the secretion, and is often due to a ferment or acid generated in the duodenum between the albuminous and oleaginous constituents of the chyme. In these cases the treatment is similar to rheumatism and should be mainly constitutional.

Treatment :

R—Syr. *Iris Versicolor* Comp.

Dose.—One tablespoonful three times a day ; alternate with :

R—Fld. Ext. Cimicifuga.	℥ j.
“ “ Xanthoxylum	aa.
“ “ Serpentaria.....	℥ ss.

Dose.—Twenty to thirty drops three times a day. At night give a mild cathartic, say epsom salts, citrate magnesia, or Seidlitz powder and an alkaline bath. When we have an anæmic condition the hypophosphite comp. will act admirably, and after the acute stage of the disease be passed, we would build up with a good tonic and nutritious diet.

Erythema œdruetum is generally an obstinate disease and requires care and attention. The limb should be well elevated at a right angle with the body; warm fomentations of hops, poppy, hoarhound or other herbs, or a poultice of slippery elm. If the swelling is great and vesicles form, puncture them freely. Give internally:

R—Syr. Stillingia Comp	℥ vii.
Fld. Ext. Podophyllum	℥ ss.
“ “ Eupatorium Per.....	℥ j.

Dose.—One teaspoonful three times a day; the alkaline bath. If we have ulceration then dress with:

R—Myrica C. Wax.....	℥ ii.
Mutton Tallow	aa.
Venice Turpentine	℥ j.

Melt, make an ointment and keep constantly applied.

Sift over the affected limb prepared starch; rest and avoid all alcoholic stimulants.

ORDER IV.—BULLÆ.

ERYSIPELAS.

Caused by a peculiar miasmatic poison generated in the system from some abnormal condition—specific poison, and may prove endemic from over-crowding, want of ventilation and sanitary measures. Once generated it is both infectious and contagious. The peculiar poison to whatsoever it may be due, or in whichever class we may place it, it contaminates the blood and destroys one of the important principles of the blood—hematine; hence the absence of iron in the blood. There is in some persons a strong disposition to this kind of inflammation, and in them it is brought on by very trifling causes. This disposition appears in some cases to be hereditary, and it may possibly depend on some peculiar organization of the skin. To the latter circumstance we may perhaps refer the greater prevalence of the disease among females. It is certainly a very remarkable fact, that while the erysipelas *sometimes* attacks the robust and plethoric, it is, upon the whole, much more commonly met with among those who have been debilitated, either by previous disease or long residence in a hot climate, or unwholesome diet or bad air. It may occur at any age.

After the imbibition or inoculation of the disease there is a period of incubation, as in other skin diseases, varying from three to seven days. During this time we have all the symptoms of absorption of poison—such as pain in the head, back, limbs, chilliness, rigors, sore throat, general constitutional disturbance of the whole system; arrested secretions of skin and kidneys, liver, tongue, brain, nausea, vomiting, constipation in some cases and diarrhoea in others. If it appears on the face we have more or less mental disturbance.

Symptoms.—Local development is in the form of a peculiar inflammation of the skin, or sub-cutaneous areola tissues. The redness is livid, disappears on pressure, diffused, wide-spreading, hot burning, swollen and tingling pain in the affected part.

Any part of the surface is liable to be attacked, but the most common seat is the face. When it appears as a primary disease it is termed idiopathic; if it appears as the result of a wound, bruise or scratch, it is called traumatic erysipelas.

The great danger is the tendency of the inflammation to extend to the brain or throat, or direct giving way of vital power. The two poisons, erysipelas and puerperal fever, seem to be identical.

Treatment.—Begin with an active cathartic. The following is good :

R —Leontandrin	grs. vi.
Podophyllin	grs. iiii.
Bi-tartrate potass	ʒ iiii.

Mix and divide into three doses. Give one every four hours dissolved in water. When this has operated give :

R —Fld. Ext. <i>Serpentaria</i>	aa.
“ “ <i>Eupatorium Purp.</i>	grs. iiii.
“ “ <i>Asclepias Tub.</i>	ʒ ss.

Mix. Dose.—Twenty drops every three hours. When you have controlled the fever give :

R —Muriatic Tinct. Ferri	ʒ j.
Sulphate Quinine	grs. xxx.

Mix.—Give forty drops three times a day.

Confine patient to bed in a well ventilated room; give light diet, milk, eggs, cream, beef essence. If there is a giving way of vital power, give :

R —Fld. Ext. <i>Xanthoxylum</i>	aa.
Tr. Capsicum	ʒ ss.

Dose.—Twenty drops three times a day.

Locally, I have found nothing superior to :

R —Tr. <i>Belladonna</i>	aa.
Glycerine	ʒ j.
Aqua Camphor	ʒ j.

Mix and keep constantly applied to the affected parts. Erysipelatous inflammation sometimes assumes a chronic form, and requires active constitutional measures to overcome it. I have treated many such cases with entire success, giving alteratives with iron in alternation, and such local application as the case demands.

PEMPHIGUS.

Pemphigus has been divided into twenty varieties, but as they are all merely stages or appearances of the same disease, I have included all under one head. It may be defined as a non-contagious skin disease, consisting of large round or oval vesicles, two or more inches in diameter and filled with serum of an alkaline nature.

Symptoms.—The disease of pemphigus and pompholyx are distinguished by the former being attended with fever, whilst the latter has none. Languor, lassitude, followed by fever, the eruption of vesicles from the size of a pea to that of a walnut are the symptoms of pemphigus. Sometimes the blisters commence round a small brown point on the skin produced by the rupture of a vessel; the vesicle enlarges, the blood tinges, its fluid of a brown bluish color; generally its contents are simply serous; the vesicles are sometimes followed by sores, which are covered with scabs like rupia, or degenerate into ulcers. Erythema and petechiæ have been combined with it; it is sometimes epidemic, and attended with heat, itching and vesicles which appeared brown with a mild typhus relieved by saline and cooling medicines. Sometimes the symptoms have been inflammatory and violent with ophthalmia, and a copious flow of tears. Three or four weeks' time is required for it to run a natural course in a good constitution.

Causes.—Deprivation, want of sufficient nutrition, and general debility of the system, from impure and impoverished condition of the blood.

Treatment.—In the mild febrile variety purgatives, sudorifics, should be prescribed; when the dark serous vesicles appear with low typhus symptoms, tonics and laxatives are proper.

Regulate the secretions of the whole system with alteratives and tonics. The syrup of hypophosphite comp. before meals, with :

R—Fld. Ext. Serpentaria.....	.....	} aa.
“ “ Asclepias.....	.....
		} ʒ j.

Dose—Thirty drops in water after each meal.

The diet is all important. Locally, bi-carbonate of soda, one drachm to a pint of water; apply three or four times a day. This will cut short and cure most every case of this troublesome disease.

POMPHOLYX.

Pompholyx, with which pemphigus has often been confounded, is a *chronic* ailment, characterized by an eruption of bullæ, or visicles of the size of walnuts, which continue to appear in successive crops, occupying different parts of the body, but more especially the extremities. This disease is unattended by fever. It often lasts a month or six weeks, and appears to be connected with some cachectic or depraved and debilitated state of the whole system.

Pompholyx is particularly obstinate and severe in old people. It produces in them great itching and inconvenience, and from the extent of surface occupied by the eruption, and the occasional intermixture of livid vesicles, presents, on some occasions, a very formidable aspect.

Treatment.—We must build up the whole system, for this purpose the tinct. cinchona comp. with nitro muriatic acid in alternation, the hypophosphite comp., a good nutritious diet; keep all the secretions regulated, and inculcate exercise in the open air; a mild purgative two or three times a week will prove beneficial. Locally, the alkaline bath; after which cover with purified starch. The treatment from first to last should be such as will build up and increase the vital powers.

ORDER V.—PUSTULÆ.

IMPETIGO.

The running tetter consists in small pustules, breaking and discharging a thin and sometimes yellow humor, followed by scabs of the same color; the cuticle is rough, reddish or scaly, with a slight discharge from the cracks or fissures, or beneath the scabs; ulcers succeed, discharging a clear ichor; their cavities are considerable, though unequal and surrounded by pustules. In men who have passed the middle period of life, or are sedentary, their edges are often livid and the limbs become œdematous. The disease sometimes commences about the knuckles, and spreads about the fingers and thumb, wrists and forearm; it is succeeded by a watery discharge, laminated scabs, a scaly and chopped cuticle, with the scab partially covering it. Fresh pustules, attended with heat, soreness and violent tingling, follow, the skin becoming by its frequent repetition rough, harsh and inflexible.

The disease appears only in the *colder seasons*, disappearing in the summer. Headache, indigestion, pain in the stomach, violent pains in the limbs and back, and cramps of the lower extremities often precede it. It attacks adults and persons of advanced age most frequently, and sometimes children. Intemperance, sudden changes of heat and cold and violent exercise produce it. The predisposition to it is hereditary; it is sometimes the result of local causes alone, as where alkali has been applied to the skin, by the use of soap as in washerwomen; it appears also in the hands of bakers, from the application of meal. This description embraces all varieties comprehended under the species—*figurata*, *sparsa*, *scabida*, *erysipelatos*, and *rodens*. The differences constituting the two first consist in the figure and distribution of the inflamed patches; the third is distinguished by the quantity of scabs; the fourth and fifth by the accidental variety of inflammation which attends it. The same remedies are equally useful in all.

Treatment.—

R—Syr. Stillingia Comp.....	0 j.
Iodide Potass.....	3 j

Dose.—One teaspoonful three times a day.

R—Fld. Ext. Alnus Rub.....	aa.
“ “ Iris Versicolor.....	ss.
“ “ Corydalis.....	ss.
“ “ Helianthemum.....	ss.

Dose.—Thirty drops three times a day.

When the alterative treatment has been continued for, say two months, then give :

R—Fld. Ext. Gentian Comp.....	aa.
“ “ Populus.....	j.
“ “ Asclepias.....	j.
Syrup Simplex.....	v.

Dose.—One teaspoonful three times a day. Locally, bathe the affected part with sulphur soap, or carbolic soap, and apply :

R—Aqua Calcis.....	3 i j.
Oleum Olive.....	3 iv.

Saturate the affected part and cover with oil silk to exclude the air. All cerates or ointments of that class aggravate the trouble and are not admissible. Keep the incrustations washed off, and the parts covered so that new skin formation may take place. This is best accomplished by excluding the air.

Remember that impetigo is an obstinate disease, and it takes weeks and months to cure it. Never promise a speedy cure, or you will be doomed to disappointment.

PORRIGO.

Porrigo is a very familiar form of chronic cutaneous disease. It chiefly affects children from the period of dentition up to the fourth or fifth year of life, or even later. It is characterized by an eruption of straw-colored pustules scattered at times over the whole body, but principally observable on the scalp, the face, behind the ears, and about the ankles. A porriginous state of the *scalp* frequently accompanies the process of dentition, and is then perhaps rather salutary than otherwise ; by neglect this disease assumes a most frightful aspect. The pustules discharge a viscid fluid which concretes into scabs, and the face becomes enveloped in a mask.

Porriginous eruptions occur in different states of the system. They are, I believe, chiefly attributable to a *gross* diet and connected with plethora ; but at times they arise in feeble and flabby habits, and appear in combination with cachexia and marasmus.

Treatment.—The treatment of this form of the disease must be regulated by the varying circumstances under which it occurs. In general, purgatives are

indispensable; and the combination of rhubarb and potass. with leptandra, say :

R—Syr. Rhei. et Potass.....	§ i.
Fld. Ext. Leptandria..	aa.
“ “ Juglans.....	§ ss.

Dose.—One teaspoonful two or three times a day, as indicated, to keep bowels regular. Locally, a bath of sulphur soap daily and the ointment :

R—Myrica Wax	aa.
Venice Turpentine..	—
Saxoline.....	§ iv.

Rub well in over the affected part. Give the syr. hypophosphite comp. if the child is teething, and a general tonic course.

ECTHYMA.

A rather uncommon skin disease, but sometimes met with in conjunction with eczema and other skin diseases. It is a non-contagious inflammation of the skin, characterized by large, red, prominent pustules occurring upon any part of the body.

Pustules, either distinct or isolated, seated upon a hard, inflamed surface and leaves a depressed center and a scar remains. This disease is due to a morbid condition of the skin, which supervenes during the course of various diseases—venereal disease, scrofula, and scurvy.

It is met with as an acute disease preceded or accompanied by sharp, lancinating pains, feverish condition. It is more frequently chronic and caused by bad living, total absence of hygiene.

Treatment.—Keep the skin clean and pores open by frequent ablution in warm alkaline bath, and give syr. iris versicolor comp. one teaspoonful three times a day. Keep the bowels regulated; give due attention to air and exercise.

ORDER VI.—VESICULÆ.

VACCINIA.

This is the result of introducing vaccine virus into the system, or rather the sequel of vaccination. The vesicle or pimple makes its appearance in from twenty-four hours to three days after the insertion of the virus. It is usually conspicuous on the fourth or fifth day. I have met with some cases, however, that remained dormant fourteen days. The vesicle should be distinct on the sixth and an areola formed around it by the eighth or ninth day, and this is the perfection of the eruption or full development of vaccinia.

In the progress of the effect of vaccination we sometimes have great constitutional disturbance, and all the symptoms of blood-poisoning may arise; ordinarily, however, it is so mild as to require no special treatment. If the consti-

tutional disturbance is great diaphoretics and warm alkaline baths will be advisable.

The sulphite of soda, in ten grain dose once in three hours, will abort or neutralize the effect of vaccination, and is a potent remedy in all cases of blood-poisoning resulting from vaccination. This, with a nutritious, unstimulating diet, will be all that is required in vaccinia.

HERPES.

Of all the lighter varieties of cutaneous eruption complicated with fever, herpes is that which is most distinctly entitled to the character of exanthemata. The term herpes is appropriate to a vesicular disease preceded by febrile languor, and other marks of constitutional disturbance. The vesicles pass through a regular course of incubation, maturation and decline, terminating in most cases in about a fortnight or three weeks.

Herpetic vesicles are distinguished by their occurring in distinct but irregular clusters, appearing in quick succession, set near together and upon an inflamed base which extends some way beyond the margin of each cluster. The most frequent form of the disease is the herpes zoster or *shingles* in which the eruption appears on the abdomen but is observed in some cases on the extremities or breast. Young persons from fifteen to twenty-five years of age are commonly the subjects of this disease.

Very little is known regarding its causes. It is most frequent in summer and autumn, and seems in some cases to arise from exposure to cold after violent exercise.

It is always slight, seldom confining the patient to the house or occasioning any debility.

Treatment.—Give a Seidlitz powder every morning; keep the secretions regulated, the skin active, and locally:

R—Sulph. Zinc	gts. xx.
Hydrastia	gts. x.
Aqua Rosa.....	ʒviii.

Apply several times a day.

This seems to comprise everything that is really necessary in regard to treatment. In hot countries herpetic *ringworms* (herpes circinatus) often prove both tedious and severe, but in this country they follow the usual course. That variety of the disease termed herpes *labialis* occasionally appears as an idiopathic affection, originating from cold and fatigue. It is then preceded for two or three days by nausea, lassitude, languor and sometimes severe feverish symptoms. It is more commonly symptomatic of some internal disorder and requires an active course of alterative treatment.

RUPIA.

This is in some respects similar to pemphigus, and by some writers classed under "bullæ." It makes its appearance, however, with a vesicle and I have classed it under the head "vesiculæ."

There is at first a flattened vesicle filled with a thin serous fluid, which soon assumes a purulent form, concretes or hardens into a scale or crust dark and thick, then drops off leaving a deep ulcer, which in time is again covered with crust, throws out serum; the adjacent part is inflamed and the disease spreads in this way.

The ulceration is not disposed to heal, and if neglected the disease increases until the whole surface of the skin is more or less involved.

Causes.—Syphilitic poison, mercury, or other poisons used to cure syphilis, improper diet, poison oak, etc.

A very prominent syphilitic remedy, now advertised extensively, contains this last ingredient, and thus seeks to cure one disease with another. I have met with several cases of rupia as a result of the treatment of syphilis.

The digestive functions are always deranged; there is an acid formed in the duodenum, which tends to aggravate this disease.

Treatment—

℞—Podophyllin..... grs. j.
Leptandrin..... grs. iv.

Make two powders; give one night and morning.

As rupia is almost universally associated with scrofula, or syphilis, and attended with impaired vital force, it is a good plan to give a tonic combined with alkali, and for this purpose nothing will meet the indications better than the syrup of hypophosphite comp. one teaspoonful three times a day. We may alternate with:

℞—Tr. Cinchona Comp..... ʒ ij.
Fid. Ext. Dulcamara..... } aa.
" " Iris Versicolor..... } ʒ ss.
Syrup..... ʒ v.

Dose.—One dessert spoonful three times a day.

After the acid condition is overcome, we may substitute the cinchona and phosphoric acid comp. for the hypophosphites. Locally, we may puncture the vesicles, let out the fluid and coat with collodion. If a scab or crust form remove with elm poultice and then paint the ulcerated surface with:

℞—Acid Carbolic..... grs. xvi.
Glycerine..... ʒ ij.

Wash the ulcer three times a day with:

℞—Fld. Ext. Hammamelis Vir..... } aa.
Myrcia Cer..... } ʒ j.

One teaspoonful to a pint of water.

MILIARIA.

A pimple eruption with a vesicle resembling millet seed. There is some degree of fever, lassitude and increased circulation preceding its appearance. Then we have the vesicles thickly formed, having the appearance as though millet seed had been thickly sown on the surface. It is a mild, non-contagious type of vesiculæ, and requires but little treatment.

Causes.—It is due to some obstruction in the action of the skin ; generally an acid condition of the stomach accompanies it.

Treatment.—A warm alkaline bath, a mild purgative, syrup of rhei et potass., one ounce at bed time.

If fever runs high, then a few doses of asclepias and serpentaria, and when acidity of the stomach prevails give the sulphite of soda, ten to twenty grains, three times a day. Keep the bowels open.

ECZEMA.

Eczema is characterized by a diffused eruption of vesicles without inflammatory bases. It has for its local causes the direct rays of the sun (eczema solare), and for its constitutional causes the irritation of mercury in habits peculiarly predisposed. The constitutional disturbance attending this disease usually takes the form of slight feverishness. The vesicles produced by exposure to the sun give a good idea of all the species comprehended under the genus eczema, to which this disease belongs. The mercurial disease (eczema mercuriale, hydrargyria) is characterized by heat, itching—a sense of tingling extending over the body, but particularly on the flexures of the joints, as the armpits and groins. These symptoms are succeeded by roughness and tumefaction of the skin, which is of a bright red, as in scarlatina ; sometimes the color is darker, and is gradually followed by minute vesicles, containing a transparent fluid, which gradually becomes opaque and milky ; they at length break and discharge a foetid, viscous, and sometimes excessively irritating fluid.

The cuticle disquamates in large patches and leaves the parts first affected raw and covered with the same secretion. A slightly furred tongue, a great appetite, a weak and quickened pulse, with weakness, are at first the only constitutional symptoms ; the new cuticle is destroyed and reproduced several times in twenty-four hours ; the disease lasts for a day, sometimes for weeks and months.

It is also produced by balsam copaiba, opium, antimony, etc. In these cases it continues only a short time. The accompanying state of the system, in its violent form, may be inflammatory, moderate, or typhoid, according to circumstances, accompanied with great debility and diarrhœa.

The nares, trachea, and bronchia are sometimes violently inflamed.

As many cases of this disease have occurred when the patient was under the influence of a catarrh, it has been supposed to be owing to this cause, combined with the influence of mercury. Idiosyncrasy, favored by cold and moisture, appear to be its true causes. Eczema is a result of effusion, and is attended by a discharge of serum into the sebaceous ducts of the skin, and from their fragile nature they easily break down and reveal moist patches of ulceration covered with scabs or crusts.

Treatment.—This must be directed to get up a healthy action in all the secretory organs.

We would commence with an active dose of citrate of magnesia, and follow with warm alkaline baths. Give the following :

R—Syr. Iris Versicolor Comp.

One tablespoonful before each meal.
After meals would advise :

<i>R</i> —Comp Tinct. Cinchona.....	ʒ j.
Nitro-Muriatic Acid	ʒ ij.
Syrup Simplex	ʒ iii.

Dose.—One teaspoonful in half a wineglass of water.

In connection with this I would advise a local application calculated to subdue heat :

<i>R</i> —Oleum Linseed.....	} aa.
Aqua Calis.....	

Brush the raw surface twice a day ; keep the skin moist with soft cloths or cover with oil-silk.

Continue this line of treatment, in connection with a nutritious diet, and a cure will be accomplished in much less time than under any other treatment.

ORDER VII.—TUBERCULÆ.

PHYMA.

This is a slow, unsatisfactory species of tuberculous ulceration of the skin. It very much resembles carbuncle in appearance, but is more slow and obstinate. The cellular tissue is involved to more or less extent in every case of phyma. The action is so tardy that the abscess is a long time in reaching maturity.

Treatment.—As in all other species of tubercular disease, there is deficient vitality, and our main object is to build up the whole system. The hypophosphites, cod liver oil, cinchona internally, and, locally, we would hasten suppuration by warm poultices, discutient ointment or the myrica ointment, as directed in a previous article. The disease is not common, and must be treated upon the same general principles as other conditions of low vitality.

VERRUCA.

This is characterized by the appearance of warts or tumors of irregular shape and size, and filled with tuberculous substance.

They sometimes assume very alarming proportions and break down the general health.

Children of a tuberculous diathesis are very subject to warts or excrescences.

Treatment.—Build up the general health, puncture the warts, and apply nitro-muriatic acid to each one. Under this application they will soon disappear, and by attention to diet and hygienic rules their return may be prevented.

MOLLUSCUM.

An affection of the skin which consists of a numerous growth of tumors from the size of a pea to that of a pigeon egg. They are usually of a brown color; in some cases scarcely rise above the surface; in others they grow rapidly and destroy life. They are filled with tuberculous matter, which is developed in the *dérmis*. They are unmistakable, and, if stationary, are best left alone.

Treatment.—The same as directed in the preceding. If the growth is large, ligate, and when it sloughs off, apply a solution of chloride of zinc to the base; build up the general health with tonics, nutritious diet.

VITILIGO.

This is a condition of the skin where we have a thickened condition, and underlying the outer surface a secretion resembling the albumen or white of an egg. The skin is somewhat similar in appearance to that of elephantiasis. It is a disease rarely met with. I have never seen but one case.

Treatment.—Must be upon the same general principle as that of other tuberculous formations.

Locally, nitro-muriatic acid bath, and close attention to diet, and exercise in open air. Keep the digestive functions regulated.

ACNE.

This is a tubercular eruption of the skin, making its appearance first on the face, nose, forehead and shoulders; it appears as a mere thickening redness, and from this proceed points or tubercles. The parts affected are conspicuous by their redness and pustules, and annoy the patient more by the attention it naturally attracts than the real pain or inconvenience. Sometimes it is caused by a diseased condition of the sebaceous follicles, induced by disease or indulgence. It is better known among the common people as "worms in the skin."

It is, however, real tubercles of the skin, which burst and throw out little cheese-like particles of matter and leave a red, tender appearance, which slowly disappears, except a slight depression in the skin.

We have several forms of acne, as acne simplex or simple acne; acne indurata or indurated acne; acne rosacea, from its extreme redness, and acne syphilitica, a result of syphilis. Acne simplex, indurata, and rosacea may properly all come under one head—maggot pimples, and are most common about the age of puberty; appear in the cheeks and forehead; are very protracted; often leave indelible traces.

In their primary stages they consist of a number of black points, with slightly elevated borders. There is no doubt as to their origin—concreted sebaceous matter accumulated in the follicular structure or glands, and may be squeezed out of those glands or ducts. Sometimes they inflame and form small tubercles, which suppurate and discharge.

Acne rosacæ, rose drop, carbuncle face usually commences in the side of the nose and spreads to the cheeks, covering only a part of them—small tubercles, which suppurate slowly and produce a brilliant shining redness, and an irregular granulated appearance of the skin, pale on first arising in the morning, but growing intensely red under excitement.

The skin gradually thickens, and we often see well defined varicose veins, suppurate. Late in life we can usually trace acne rosacæ to excessive eating and drinking.

Treatment.—We must regulate, first of all, the digestive functions, and, if in the female, the uterine functions must be regulated. We must get up an active, healthy condition of the liver, kidneys and skin, and thus prevent the clogging of the sebaceous glands or ducts; to this end we must carefully regulate the diet, avoid all stimulants, impress upon the mind of the patient the great necessity for perfect cleanliness, and to meet this indication, bathing of the skin with alkaline washes, and internally we must give alteratives, such as the alterative syrup iodide potass., yellow dock, frostwort, etc.

We have no end to local remedies. Carbolic acid and glycerine are excellent; apply as strong as the patient can bear it, and after a few minutes wash with soap and water. This will stimulate, and at the same time prevent the formation of tubercular deposits. Another good prescription is :

R.—Iodoform.....	grs xx.
Lard.....	3 ss

Mix well, and apply as an ointment to the affected part, or :

R.—Iodide Potass.....	3 j
Aqua Pura.....	3 viii.

Apply over the affected part, night and morning.

When it arises from constitutional syphilis we must give the remedies found under that head, and locally, the iodoform ointment well rubbed in.

In all skin diseases we must inculcate exercise and strict cleanliness of person, so as to keep the sweat glands open.

SYCOSIS.

This is a tubercular disease of the skin, formed on the scalp, or on the part where the beard grows. The tubercle generally forms around the hair. It becomes very painful when on the face, and often prevents shaving altogether.

Treatment.—Is to puncture the tubercle and remove the hair which it surrounds, and apply some soothing lotion or ointment.

LUPUS.

Indurated, or tubercular swelling of the skin, may not ulcerate for a long time, while again the destructive tendency is so great that ulceration occurs in the beginning. But early ulceration usually commences at the base of the tubercle, and takes the form of a circle, more or less complete. Most frequently attacks the nose, and is essentially a scrofulous ulceration. We have it divided into two forms by some writers, *lupus non exedens* and *lupus exedens*. There is no ulceration (as its name indicates) in the first, a mere exudation of tubercle, extension superficial, and spreads rapidly. The latter form is more distinct; eats the nose, cheek and every part it comes in contact with.

I had a case under my care some years ago where the lips were destroyed, the teeth ready to drop from their process, the nose nearly destroyed, and the eyes almost ready to drop from their sockets; strange to say, under my treatment, he so far recovered as to stop medicine, but unfortunately went back to the bottle (intemperance) and soon brought all his ailments upon him again. There is a continuous destruction of the skin and tending to increased ulceration. It often destroys the muscles, finally the bones, and produces the most hideous deformity.

Causes.—The scrofulous diathesis is the predisposing cause. The exciting cause, depressing influence and intemperance, both in eating and in drinking, excesses in any direction.

Treatment.—One of the most important considerations is perfect hygienic rules, a good nutritious diet, fresh air, plenty of exercise; all alcoholic liquors must be abandoned.

We must endeavor to get up a free, healthy secretion of all the functions, of liver, kidneys, skin, etc. To this end give fifteen drops of fld. ext. podophyllum at night.

<i>R.</i> —Fld. Ext. Iris Versicol.....	℥ j.
“ “ Alnus Rub.....	℥ ij.
“ “ Sanguinaria.....	℥ ss.

Dose.—Twenty drops three times a day after meals. Give before meals one teaspoonful of the syrup of hypophosphites, or in place of that give:

<i>R.</i> —Pure Glycerine	℥ j.
Acid Phos. Dil.....	℥ iii.

Dose.—One teaspoonful before meals.

The local treatment may be the free application of :

R. —Fld. Ext. Myrica Cer.....	aa.
“ “ Nymphia Odor.....	§ j.
“ “ Trifolium.....	§ iii.

Mix, and apply with a camel's hair pencil.

When we have a healthy, granulating surface, dress with :

R. —Permanganate Potass.....	grs xvi.
Aqua.....	§ viii.

Saturate a piece of lint and keep constantly applied. All local applications fail unless we can bring up the general health of the patient.

Daily alkaline baths, a good diet and regular habits are everything.

ELEPHANTIASIS.

A disease common in the East and West Indies, and so called from the skin of the affected limb becoming rough, scaly and enormously thickened, so as to resemble the leg of an elephant. It generally comes on with great heat of the skin, alternating with profuse perspiration and ardent thirst. The part becomes red, hot, swollen and painful, increases to great size, and becomes a burden to the patient. Though it is the leg that is generally affected by this disorder, other parts of the body are liable to its attack, but it is not usual for more than one part to be morbidly enlarged in the same individual. In the treatment of this disease in its earlier stages, the use of laxatives and diaphoretics is recommended, together with the application of discutient ointment to the part and firm bandaging. In the latter stages little can be done for its alleviation, and amputation of the part is generally discountenanced.

FRAMBÆSIA.

This disease is ushered in without any precursory symptoms, when suddenly a part of the skin about the face, scalp, axilla, or genital organs, is found covered with small spots of a dusty red color, which gradually become converted into large tubercles, isolated at their summits, but collected together at their bases, and bearing a strong resemblance to raspberries in color and form. The tubercles are generally hard, covered with dry scales, and are sometimes inflamed. If the inflammation spreads, ulceration soon sets in, and a yellow sanious discharge results, which forms scabs around the tumors.

Treatment.—The internal treatment should be the same as laid down for scrofula and tuberculosis; locally, the best remedies are painting the part with strong acetic acid or a solution of carbolic acid.

The internal treatment is chiefly to be depended on.

KELOID.

The most common appearance of the affection is small, flat, painful tumors, several inches in diameter, raised above the level of the skin, having irregular forms, with slight depressions in their centres, covered with wrinkled epidermis. Sometimes the excrescence is in vertical streaks resembling leather in every variety of shape and conceivable form; at other times it resembles a cicatrix left by a burn, which, though soft on the surface, communicates a sense of density and resistance on pressure. The disease slowly develops itself, sometimes ulcerates and sometimes disappears spontaneously. It occurs on the hand generally. Treatment of any kind seems powerless.

NÆVUS.

A tumor formed from irritated arteries or veins; begins in some cases in youth. The vessel is enlarged, elongated and tortuous, forming an elongated tumor. The arterial tumor is compressible and pulsating; tumors of veins are irregular and pulsating, of a purple color, doughy to the feel, and dented by pressure.

Capillary is most common, and consists of vivid red spots. We have three plans of treatment.

Treatment.—Inject a few drops of tinct. chloride of iron into the tumor; other astringents will do as well, but this is the easiest managed.

This will excite coagulation and nature will do the balance, and absorb the contents of the sack. If we fail, or object to the first, then our second mode is to protect adjacent parts, and then apply caustic potash to the tumor; afterward dress with vinegar and elm poultice.

The third plan is removed by the knife or ligature; never resorted to by myself while we have other and safer plans.

Should the general health be involved, we would give the tinct. of cinchona comp. and phosphorus before each meal to give tone to the nervous system.

ORDER VIII.—MACULÆ.

EPHELIS.

A cutaneous affection of the countenance to which persons of a florid complexion are greatly subject, especially females with auburn hair. They appear in small yellow spots (known as freckles) over the face in the hot period of summer, and by their number give a stained and unpleasant appearance to the countenance. A still more obstinate form appears in winter, often proceeding from a disordered state of the stomach.

Treatment.—Various applications have been proposed for their removal; one of the best prescriptions is:

℞—Aqua Calcis.....	aa.
Oleum Linseed	℥ ij.
Aqua Ammonia.....	℥ j.

Rub well in over the spots night and morning, and cover during the night with oiled silk.

A decoction of alder flower acts well in mild cases.

Horse radish steeped in buttermilk is an excellent wash for these disagreeable spots; use the wash night and morning.

SPILUS.

A discoloration or spots on the skin varying in size from that of a penny to two inches in diameter.

They assume a brown, dark or livid appearance, according to the complexion of the individual upon whom they appear.

Generally arises from imperfect digestion and disorders of liver or spleen.

Treatment.—This consists in regulating the digestion, getting up an active secretion of the liver, and locally, the liniment or lotion directed under the head of ephelis. If this fails then try:

℞—Citric Acid	℥ j.
Powdered Sugar.....	℥ ij.

Mix, make into a paste and apply, letting it remain twelve hours.

ORDER IX.—PARASITIA.

TINEA TONSURANS.

As the different varieties of tinea require almost the same treatment, I shall, commencing with tonsurans, give a description of each and then follow with a line of treatment which will be found applicable to all.

Trichophytosis capitis is a disease of early life, occurring among infants and children, and never, so far as the author's experience goes, among adults. It is characterized by the appearance upon the scalp of one or more small, round white, scaly patches, apparently deprived in part or wholly of hair. The patches extend in a centrifugal manner with greater or less rapidity. They increase in size and others appear in the neighborhood, and if the disease is unchecked soon fuse together, until more or less of the scalp is involved, when the appearances noticed in the smaller patches are observed over the whole surface. The ultimate result, if unchecked by treatment, is the involvement of the entire scalp with destruction of the hair-follicles and permanent loss of hair.

The affection is exceedingly contagious, the most so of any of the parasitic diseases of the skin, and is frequently conveyed by the use of hats, brushes, etc., which have been previously used by persons affected with the disease. It is also probable that the spores may be conveyed some little distance through the air, as the affection sometimes spreads rapidly in schools, even where ordinary precautions are employed.

TINEA FAVOSA.

Favus is a parasitic affection of the skin, characterized by the development of pale yellowish crusts in connection with the hairs and their follicles. It is more frequently on the scalp than elsewhere, but may be met with on any part of the body that is supplied with hair. It usually commences by the appearance of small white specks or points. These gradually increase in size, become yellowish in color and umbilicated, forming small crusts, the umbilication being traversed by a hair, or if the hair be absent will be found to correspond to the mouth of a hair follicle. The crusts slowly augment and project somewhat above the level of the skin. If one of them be removed it will be found to have somewhat the form of a concavo-convex lens, its upper surface having a marked depression or concavity surrounded by an elevated border. Its under surface is convex and the convexity will be found to correspond to a small depression in the skin from which it was removed. Other crusts appear in the neighborhood or scattered over different parts of the scalp and gradually increase in size; contiguous ones join by mutual extension, so as to form a mass of considerable proportions mottled over with little depressions perforated by

hairs. As the disease further advances portions of the crusts drop off carrying with them some of the hairs. Ultimately the crusts disappear, leaving a surface at first somewhat reddened but afterward white, dry, atrophied and cicatricial in aspect and deprived of hair. The progress of the disease is slow, and when uninterfered with by treatment may last for ten or twenty years before it completes its course, which it will do when it has permanently destroyed all the hairs of the affected region.

Favus of the scalp attacks children by preference, being but rarely found in adults as a recent affection. It is highly contagious and may be transferred directly from one to another, or by means of caps, brushes, etc. This affection is not confined exclusively to the human race, but in some instances it appears to originate in the mouse. Cats which catch mice diseased in this manner become infected from them, and children playing with the cats contract the disease in turn from the latter.

TINEA DECALVANS.

Alopecia areata is an affection characterized by the loss of hair from the scalp or other parts. The affection commences by small circumscribed, usually round patches, which gradually enlarge until contiguous ones unite. The parts most frequently affected are the scalp and region of the head, though all parts of the body may be affected and all of the hair be shed.

The only affections with which alopecia areata is liable to be confounded are trichophylosis capitis and syphilis. In the former, the apparently bare places are in reality found to be covered with a short hairy stubble from one-sixteenth inch to one-eighth inch in length, plentifully interspersed with fine, farinaceous scales.

In alopecia areata, on the other hand, the patch is absolutely bald, sometimes slightly elevated and injected, more frequently depressed and pale and without scales. The bald patch itself is surrounded by apparently healthy hair. In syphilis the loss of hair is usually diffused and rapid, more rarely intermingled with circumscribed patches. The scalp is sometimes slightly injected but not elevated. The concomitant symptoms should enable the diagnosis to be made without difficulty.

Treatment.—In nearly every case of tinea we shall find more or less constitutional disturbance. It is often connected with a scrofulous or tubercular diathesis, and when such is the case it acts as a sort of outlet, and to stop it at once would lead to almost certain development of the disease in some other form. I have invariably treated the different forms of tinea on the same general principles, first of all giving close attention to constitutional symptoms.

In cases where we have a scrofulous diathesis, then the treatment laid down under scrofula should be resorted to. When we have it connected with anæmic condition we should build up the general health, improve the quality of the blood. This is often sufficient and will stop the progress of the disease. Experience has taught me that the old plan of treating tinea as a local disease is ab-

surd and often does great harm, and to prevent any unpleasant results from a sudden drying up of the discharge, we should precede any local treatment by a thorough alterative and tonic course. To this end we would direct :

R.—Syr. Iris Versicolor Comp.

One tablespoonful three times a day given in a half wine glass of water. Alternate with :

R .—Tr. Sanguinaria Cana.....	}	aa.
Fld. Ext. Populus.....		
“ “ Gentian Comp.....		
“ “ Asclepias Tub.....		
		3 ss.

Dose.—Thirty to forty drops three times a day. Wash the scalp or other affected parts with sulphur soap. Shave the hair close, and, after you have given the above remedies for a month, then apply :

R .—Oleum Olive.....	}	aa.
Aqua Calcis.....		
Fld. Ext. Baptisia.....		
		3 ij.

Paint the affected part twice a day. Should the crust continue to form under the above application then try dilute nitro-muriatic acid as a local bath, and dress with :

R .—Myrica Wax.....	}	3 ij.
Saxoline.....		
Venice Turpentine.....		
		aa.

Melt together and apply once in twenty-four hours. The lotion of myrica and sanguinaria acts well in some cases, as :

R .—Fld. Ext. Myrica.....	}	aa.
“ “ Sanguinaria.....		
Aqua.....		
		3 j.

Saturate the affected part twice a day.

Cleanliness is essential to success in treatment, and the patient must avoid scratching or picking at the crust.

When we have much pain we should resort to lactuca, cypripedium, humulus, etc.

The crust must be carefully removed, and this is best affected by the use of sulphur soap and warm water. Keep the bowels regulated with rhubarb or other mild aperients ; constipation will always aggravate the disease. The old plan of putting on tar caps to take out the hair and remove crust is too cruel to be thought of in our advanced system of practice. When the hair has been removed and shows no disposition to grow again, after the disease is controlled we would apply :

R .—Oil Peppermint.....	}	aa.
“ Cinnamon.....		
“ Mace.....		
Alcohol.....		
		3 j.

Rub well in over the scalp night and morning, or :

R .—Tr. Capsicum.....	}	aa.
Xanthoxylum.....		
Oleum Ricini.....		
“ Bergamot.....		
		3 ss.

Mix.—Shake well and rub well in over the bald spots.

PLICA POLINICA

Is characterized by a kind of exudation by which the hair is matted and forms a sort of agglutinated plaster. The exudation resembles that of the pollen of plants, having a gluey feel to the fingers. It is not common to this country, but prevails extensively in the north of Europe.

The disease assumes an epidemic form in some countries, and is perhaps the most contagious of all skin diseases. To its fertilizing properties is due the term polinica.

Treatment.—I presume would be similar to that of tinea, keeping the parts well bathed with sulphur soap, the olive oil and lime water, and build up the general health with tonics and a good, nutritious diet.

CLOSMA.

This discoloration of the skin is classed with parasitic diseases by some, but more properly belongs under the general head, maculæ.

The description of pilus and the management of that class of discoloration will apply with equal force to this. Being in doubt as to its being of a parasitic or contagious nature, I shall not so class it. It is in a measure due to congestion of the capillaries and imperfect action of the liver.

SCABIES.

Itch has so many appearances that writers usually divide it into two varieties and give it several names. It is a vascular eruption of a constant itching, aggravated by scratching, by heat of fire, bed clothes, etc. It is decidedly contagious, and may continue for years, or for a long time, if neglected. It is caused by an insect so small that a microscope is required to see it. It appears as a small, dark point at the end of a white line. It is divided into three forms:

SCABIES SIECA.

A pimply dry itch, common to adults, and when suppressed may produce apoplexy, dropsy, hydrocephalus, etc.

SCABIES VESICULAR, OR COMMON ITCH,

Mostly occurs in high land. Stopped too suddenly, various affections of the pulmonary organs may result.

SCABIES PURULENTA.

Composed of yellow purulent eruption between the fingers and toes. The principal, if not the only cause of itch, is contagion. Most invariably contagion is confined to no age, sex, rank or condition, but most commonly among those

who neglect cleanliness, especially sailors, soldiers, prisoners, etc. The contact of the smallest particle of matter causes contagion of the disease. As the insect will not leave its burrow except at night, and if impregnated not then unless by scratching, the contagion is not likely to occur except at night, as by holding the hand or hand-shaking, but if disturbed by scratching it will be communicated even in this way. Is most common in youth or those with tender skin.

Treatment.—Apply benzine to the affected parts every night. This is a sure and effectual remedy. In case this cannot be had, direct a strong alkaline bath at night. A lye made from hickory ash, and well rubbed in with a coarse towel, will relieve most cases in a few days.

Sulphur ointment is highly extolled but is not pleasant to use.

The parasite is surrounded by an acid secretion; hence alkaline treatment is effectual. A decoction of poke root is a specific, but is both severe and dangerous if the skin is much broken. It should be used with care.

A decoction of the larkspur will be found effectual, or a decoction of the bark of the sweet gum tree.

If the system is debilitated and irritable, then a tonic course of treatment will be demanded.

When the disease has continued for a long time, we may resort to alteratives in combination with diaphoretics, etc. Cleanliness is all important, and should never be lost sight of.

Before closing this department I would impress upon you the great necessity of cleanliness in all skin diseases. The warm alkaline bath is almost indispensable, and one of the essentials of success is plenty of air, moderate exercise, and, as near as possible, freedom from worry.

I have known the cure of skin disease interrupted, and all the symptoms return in cases that were progressing rapidly towards recovery, by some depressing influence on the mind.

There is always a more or less irritable condition of the nervous system which it will be as well to overcome by appropriate remedies. The successful treatment of skin disease will depend in a great measure upon the observance of these general rules—daily baths, perfect hygiene, a good, nutritious, unstimulating diet, and appropriate remedies to meet the indication in each case.

EFFECTS OF HEAT.

Heat, communicated from solid bodies, gives rise to *burns*; from fluid or gaseous bodies it occasions *scalds*. Injuries caused by the application of heat are attended by various dangers.

They are accompanied by a shock, which sometimes approaches to syncope, and may even prove fatal.

The period of depression is followed by proportionate reaction, with inflammatory symptoms.

During this second stage internal organs are apt to become affected, particularly the lungs and small intestines.

If the patient survive these dangers, he has still to go through the exhausting process of suppuration and repair.

Injuries caused by heat are divided into six degrees :

1. Where the cuticle is merely scorched.
2. Where the cuticle is raised in blisters.
3. Where the *cutis vera* is more or less destroyed.
4. Where the injury extends through the cuticle and true skin and reaches the sub-cutaneous cellular tissue.
5. Where the muscles and fasciæ are involved.
6. Where the whole thickness of the limb is implicated.

In practice we generally find that several of the degrees go together. A case in which the muscles are touched will probably show the milder forms of injury as well.

The prognosis in burns or scalds will depend in a great measure upon the amount of surface that is involved ; both because the skin is a tissue which is highly supplied with nerves, and also because, when its functions are arrested to any considerable extent, internal organs are very apt to become congested and inflamed. But the age of the patient, the situation of the injury and depth to which the destructive action has penetrated, are points which must not be overlooked in forming an opinion on the case and its probable issue.

The old, the young, and those impaired in health are particularly liable to suffer from the shock of a severe burn or scald. The situation of the injury is very important. If it is on the head it may give rise to inflammation of the brain or its membranes. If it is on the chest, pneumonia or bronchitis is likely to ensue. If a child has scalded the back of its mouth by attempting to drink out of the kettle, the injury may cause speedy death by inflammatory closure of the glottis.

Treatment.—The treatment of burns and scalds is partly constitutional and partly local.

Constitutional treatment.—The first thing to be done is to rally the patient from the state of shock and to bring about reaction. With this view, the patient should be placed in bed with a hot water bottle to his feet and stimulants should be given at once ; a glass of warm brandy and water or a cup of hot tea, for example. If the depression is accompanied by much anxiety or alarm, soporific, such as lactuca, humulus or papaver, may be combined with the restoratives.

Death not unfrequently takes place during this first period of the case. When reaction has begun our aim must be to keep it within moderate limits to restrain the inflammatory action. To this end perfect quietness and repose should be enforced from time to time as occasion requires. The strength must be upheld by stimulants and by a nutritious diet.

Pain must be mitigated and sleep procured by the cautious use of agents indicated above.

This is the most fatal stage in the course of a severe burn, and the surgeon

ought to be on the watch for the earliest signs of complication—meningitis, bronchitis, pneumonia, albuminuria, or intestinal ulcers.

When the inflammatory symptoms have subsided, the patient will still have to pass through a period of suppuration. If the injury has been of considerable extent his strength will, even under the most favorable circumstances, be most severely taxed, but if hectic should supervene it will go hard with him. To uphold the vital powers by cordials, tonics and good food is the great aim of constitutional treatment while suppuration continues.

Local treatment.—The patient's clothes should be gently and carefully removed, being cut wherever they are adherent to the body. If blisters have formed they should be pricked and the serum let out, but the cuticle should on no account be detached. In all injuries from burns or scalds, it has been found that the sufferer experiences great relief when the surface is coated with an unirritating substance which excludes the air and maintains an equable temperature. The principle may be carried out in a variety of ways. Some surgeons dust flour or starch, or gum tragacanth over the affected surface.

Others prefer to varnish the part with a mixture of collodion and castor oil—two measures of the former to one of the latter.

Others employ a weak turpentine lotion or ointment. "Carron oil" (equal parts of lime-water and linseed oil) enjoys a wide-spread reputation.

But whatever application is used, a smooth and thick layer of cotton wool should be laid over it, and retained by a bandage, for it is not merely an equable temperature but a *high* one as well that seems to allay the scorching pain. When once the dressing has been applied it should be changed as seldom as possible—indeed, only where the discharges render such change absolutely necessary. In this way the repair goes on most favorably and the patient is saved from much pain and distress.

If the burn is of the fourth degree or more, this treatment should be followed for a few days, and then poultices should be applied.

When the sloughs have separated the wound should be treated on general principles with water-dressing, or stimulating or astringent lotions. An ointment of chalk or a weak solution of carbolic acid in sweet oil forms excellent dressings when the suppuration is very profuse.

When cicatrization commences the surgeon must bear in mind the great tendency there is to contraction, and do all in his power, by studying the position of the patient, by bandages, by mechanical appliances, to prevent it. But notwithstanding all his efforts more or less contraction is sure to take place. Sometimes this gives rise to the most frightful disfigurement and distortion. Can anything be done to prevent or remedy these evils? The character of the cicatrix may perhaps be improved by making skin grafts. But if, notwithstanding an unsightly or inconvenient cicatrix is left, nothing short of an operation has any permanent value.

In planning such operations the surgeon has great scope for his ingenuity. Sometimes the cicatrix may be divided subcutaneously and stretched by mechanical means. Sometimes a flap of skin may be partially dissected from the

adjacent parts and turned across a corresponding surface which has been laid bare on the cicatrix.

Or a portion of skin may be similarly dissected from a distant part, the cicatrix being brought to it and firmly bound in that position till union has taken place.

BOIL.

A boil is a limited and circumscribed inflammation of the true skin. It often originates in a sebaceous follicle. It is attended with considerable pain. It runs on quickly to suppuration, bursts and discharges its contents by a single orifice. Sometimes the boil is single, but more frequently a number appear at once or in succession.

It depends upon a vitiated state of the blood from living too high or living too low; from a want of proper exercise, or from a want of cleanliness. Sometimes it is excited by local irritation, as every oarsman knows. Some persons are subject to boils every spring, depending apparently upon the feeble state of health into which they fall at that season.

Boils generally show themselves on the trunk, more particularly in those situations where the skin is thickest, as the shoulders and buttocks.

Treatment.—This consists in clearing out the bowels, and afterwards regulating the secretions.

The diet should be light, nutritious and unirritating. Tonics, such as the nitro-muriatic acid with cinchona comp., should be prescribed. A change of air will generally be found very beneficial. Locally, the boil should be fomented or poulticed till suppuration takes place. It should then be opened and the poultices continued. If a hard, indolent swelling remains, it should be rubbed with discutient ointment.

CARBUNCLE.

This is also a local and circumscribed inflammation of the skin, but more extensive than a boil and more severe in its symptoms.

The affected part becomes of a dull red color, slightly raised, brawny and intensely painful and tender. In two or three days it suppurates and discharges pus from a number of points. Large portions of the skin and of the subcutaneous cellular tissue slough, and a foul, irregular sore is left. With this there is more or less constitutional disturbance, generally of an asthenic kind.

Carbuncle occurs most frequently on the back of the neck, the shoulders and buttocks. It is distinguished from a boil by its greater size, its proneness to spread, by the flat elevation which shows no tendency to "point," and by the number of openings from which the discharge escapes.

It is a disease of middle and old age, and depends upon a faulty condition of the blood. It is rare to see more than one carbuncle present in the same individual.

The prognosis will depend upon the size and situation of the carbuncle, but yet more upon the soundness of the viscera, especially of the kidneys.

Treatment.—An aperient should be prescribed at the outset, and followed by alteratives and tonics, as occasion requires.

℞—Fld. Ext. Lactuca	ss.
“ “ Cypridium	ss.
“ “ Papaver	3 ss.

Dose.—Thirty drops once in three hours.

A nutritious diet with stimulants will be needed from the first.

The local treatment consists in making a free crucial incision, or several small straight ones, across the affected part. This should be done early, so as to save the skin. A poultice should then be applied to hasten the separation of sloughs. Some surgeons prefer to open the carbuncle by the application of caustic potash. Sometimes the unhealthy action spreads and it becomes necessary to make further incisions. When the sloughs have all come away, and the raw surface has assumed a healthy character, it must be treated on general principles. The healing process is usually slow and tedious.

WHITLOW.

This is an acute inflammation at the point of the finger. It may be considered under two degrees.

The first and most severe form is that which affects the tendons and bone; the second involves only the skin, the matrix of the nail and the subcutaneous cellular tissue.

In the most severe variety of whitlow the inflammation is deeply seated from its commencement. It begins in the sheath of the tendons, or in the periosteum. The redness and swelling extend to the hand and forearm. The tension is great. The pain is intense and throbbing. The patient gets no rest by night or by day, and is worn out by the severity of his malady.

Matter forms in the course of a few days, but it takes a long time to make its way to the surface, and in the meanwhile the vitality of the bone will probably be impaired.

The milder form of the disease generally originates in the pulp of the finger or in the matrix of the nail. The patient, who is probably out of health at the time, receives a prick or a poisoned punctured wound near the end of the finger. The part begins to swell, and becomes hot, red and painful. These symptoms increase in severity until matter forms and discharges itself.

The nail will probably be thrown off, and its place gradually supplied by a new one.

In both these varieties of whitlow there is more or less constitutional disturbance, according to the severity of the symptoms. The bowels are consti-

pated, the tongue furred, and the pulse quick. At the same time the blood is probably in an impure state, either from over-living or from want of proper nourishment.

Treatment.—The hand should be supported by a sling in an elevated position so that the finger ends point towards the opposite shoulder. The bowels should be freely opened and an alterative regimen adopted as long as the acute symptoms last. The part should be constantly poulticed with :

R—Lobelia Seed Pul	} aa. q. s.
Iris Versicolor Pul	

Make into a poultice with warm water and a soda cracker and apply hot ; change as often as dry. As soon as suppuration has taken place, a free incision should be made ; if possible, at the side of the finger, so as not to impair its tactile power, or to interfere with its future usefulness. While the inflammation is at its height the lactuca and cypripedium must be given to mitigate pain and procure sleep. If the bone is necrosed it may have to be removed, in whole or in part, before the sore will heal. In such a case the soft tissues should always be left, and supported on a small finger splint.

Even if the entire phalanx has come away, the skin and nail will make a very useful point to the finger.

Where the thecal inflammation has been extensive the tendons are apt to become attached to their sheaths and the utility of the finger is more or less impaired. Sometimes it is left stiff and straight, sometimes it is contracted. In such cases soaking the hand in warm water, rubbing the finger with soap liniment and making as much use of it as possible will be likely to do great good. Forcible flexion and extension under chloroform may sometimes be practiced with benefit.

As a last resource, when the stiffness cannot be cured, and is interfering with the patient's livelihood, amputation may be performed. If the inflammation spreads to the hand and forearm, as it occasionally does, it must be treated on general principles.

When the acute symptoms have been subdued, a course of tonics and a change of air will be of great service in restoring the patient's health.

SURGICAL DISEASES.

In the following pages I shall describe a number of leading diseases or derangements formerly delegated to the practice of surgery. I have already described quite a number of diseases of this class, and while I disclaim any intention of entering the real domain of surgery, I am compelled to say that it is a difficult matter to draw the lines between medical and surgical practice. Under our system of practice, coupled with the advancement of medical science, many of the diseases formerly treated surgically readily yield to skillful medical treatment. As to accidents and injuries, dislocations, etc., there can be no question as to their requiring surgical skill. In this country, outside of the large cities, exclusive practitioners of surgery are rarely found, and as the practice of medicine and surgery are so intimately connected, I feel justified in calling your attention to this class of derangements met with in every-day practice. Inflammation having been considered in another part of this work, I shall now call your attention to reflex action or irritation, chronic inflammation and the results of chronic inflammation.

REFLEX ACTION OR IRRITATION.

All the actions of the body are excited and sustained by internal and external impressions, which are called *stimulants*.

These stimulants may be either *natural* to the human frame, as blood to the blood vessels, bile to the intestines, and so on, or they may be *foreign*, as medicines and extraneous bodies.

Between all of the different parts of the human frame there exist intimate relations, which correspond with each other, and carry on a reciprocal intercourse of actions. The beautiful harmony produced by these concurrent phenomena is called sympathy.

These impressions not only produce effects on the part to which they are directly applied, but in consequence of the freedom of communication between the nervous system, parts of the body at a distance from those in which the original mischief exists become affected by it.

Sympathy may exist *naturally*, as the communication which there is between the uterus and breast, or it may be the result of injury and disease.

When sympathetic action is the result of injury and disease it becomes the cause of restoration on the one hand or of destruction on the other.

I should therefore say irritation is an altered action excited in the system by an unnatural impression.

Thus sympathetic pain is experienced in the knee and foot, and at the extremity of the penis when there is stone in the bladder; the passage of an urinary calculus through the ureter occasions retraction of the testicles and pain in the thigh; disease of the prostate causes pain in the inside of one or both thighs; disease of the liver occasions pain in the shoulder; a diseased testicle, pain in the loins, and irritation of the intestines, an itching of the nose.

The sympathetic effects which we have just mentioned do not consist in morbid actions of the parts thus affected, but of disordered sensations. Nevertheless, morbid actions are sometimes in parts near to, or at a distance from those originally affected.

Inflammation of the testicles is frequently the consequence of irritation in the urethra, and swelling of the breast, of morbid action of the uterus, but there is no organ so much affected by irritation or sympathetic influence as the stomach, for an obtuse pain in any part of the body will occasion sickness.

The subject of irritation consequently is a very important part of your surgical studies; it is in fact the chief foundation upon which your practice must be established; for, being, as we have before said, the cause of restoration on the one hand, or of destruction on the other, unless you well understand its great local and constitutional influence, you will be ignorant of the most valuable and unerring guide you can possess. The art of surgery, it must be remembered, is exercised on a peculiar class of maladies.

The diseases which professedly belong to it are more or less the result of disordered actions; accidents are, for the most part, relieved by attending only to a moderation or restoration of the sympathetic functions, and of the secretions, and the success of operations is also depending on the same principle.

Irritation then is an excited action, necessary, in a certain degree, for the restoration of injuries, but when too violent, or of a morbid nature, occasioning disease, or even a destruction of the part. The first part of the paragraph shows that nothing can be more erroneous in practice than to bleed or purge immediately after an injury or operation, because the skin is hot, pulse quick and tongue white, for such a state is necessary to restoration.

Irritation is generally communicated through the medium of the nerves, of which there are two grand divisions in the body. The first is composed of the brain, spinal marrow, and their nerves, which naturally convey sensation and volition; the second, consisting of the grand sympathetic nerve, the centre of which is behind the stomach in the semi-lunar ganglion and solar plexus. The modes of sympathetic communication are various, and with difficulty reducible to any specific law. In some instances, the course of irritation is from the irritated part to the sentient extremity of the nerve, as the pain experienced in the knee and foot from a disease in the hip. In other cases the course of sympathy is from the affected part to the origin of the nerve, as in pain in the loins, consequent on diseased testicles.

Irritation on the nerves of the grand sympathetic is communicated to the

stomach, probably through the medium of the semi-lunar ganglion, and to the heart through the cardiac nerves.

Kinds.—Irritation may be of two kinds, *local* and constitutional; local, when it affects only particular parts, as with an abscess from a decayed tooth; and constitutional, when irritative fever is produced by local injury or disease.

It is of the greatest importance to ascertain the cause of disordered sympathetic actions, as the removal of the condition will depend on this circumstance. If the cause be undisc. vered, the effects are likely to continue in spite of every treatment you may pursue.

The constitutional or general effects of irritation are not only produced by severe injury, but they are also sometimes excited by the most trivial circumstances. A person on having a bougé passed into the urethra for the first time feels faint, becomes sick, looks pale, and unless you prevent it will fall to the ground. On placing him in the recumbent posture, he soon recovers his senses; but constitutional irritation frequently comes on for a short time in the evening.

Symptoms.—The symptoms of constitutional irritation following severe injuries are attended with considerable derangement, the heart, brain, stomach, and other organs participating in the affection.

A person receives an injury of the leg, producing compound fracture of one or both bones; constitutional irritation commences generally in twenty-four hours; the patient complains of pain in his loins, extending up the spinal cord, and pain in the head. He then becomes restless and his countenance anxious; the tongue at first dry and covered with a whitish fur, but as the symptoms increase, it becomes yellow, and lastly, coated with a thick brown fur. There is loss of appetite, the stomach becomes irritable, and nausea and vomiting supervene; the secretions are diminished and the stools white. As the severity of the complaint increases the pulse becomes quick, hard, irregular and alternately intermittent.

The respiration is hurried, intellects deranged, all impressions on the senses are painful, subsultus tendidum, hiccoughs, vomiting, and tension of the abdomen come on, the patient sinks into a low muttering delirium and soon expires.

From these symptoms we may perceive that immediately upon the receipt of an injury, the usual balance of healthy function is destroyed, nature becomes alarmed, and directly sets about repairing the damaged parts by what is termed the restorative process.

Accordingly we find that a strong impression is made on the nervous system; all the secretions are stopped or diminished to supply the injured part with an increased power to secure its restoration. The various outlets being closed, the blood collects in larger quantities in the heart, and great blood vessels; from thence it is propelled with increased force to the wounded part, and gives rise to some form of inflammation which either terminates in a cure of the injury, or runs on to destruction of the member, or of life.

The degree of constitutional irritation resulting from injury depends on several causes; these are the importance of the parts injured, the extent and nature of the injury; the state of the constitution, age and previous habits of

the patient. Irritation is greatest in children and least in aged persons; the former are very much affected by operation, whilst the latter are very slightly so.

Treatment.—The treatment of irritation is very similar to that required for inflammation.

When constitutional irritation arises from a local cause, the remedies must be chiefly directed to the removal of that cause, or to lessen its effects on the constitution; but, on the contrary, when local disease is either promoted or aggravated by constitutional derangement, then your treatment must be directed to the disorder of the system, and as that improves so will the local affection disappear. Constitutional irritation must not be too suddenly subdued nor destroyed, as a certain degree of irritation shows that nature is endeavoring to accomplish the restorative process; keep it within bounds, carefully watch its progress, and if necessary check its violence, but do not entirely destroy it.

There are two means of reducing irritation—the *first* by restoring to the different organs their various secretions, by which the outlets become opened and fever lessened—and the *second* by allaying the excitement of the nervous system.

The first may be accomplished by producing a determination to the skin, and for this purpose diaphoretics should be given with mild aperients, but when the irritation is very severe we would give podophyllin and leptandrin to act on the liver, eupatorium purp and perfoliatum combined to act on skin and kidneys. The second indication is readily met in our system of practice by the exhibition in full dose of the antispasmodic tincture, or lactuca papaver, or humulus.

In cases of irritation active purgatives must not be given, for if carried to a great extent the powers of the constitution will be unequal to the reparation of the injury.

Where there is chronic irritation the best treatment you can adopt is to give steadily those medicines which have the greatest chance of overcoming the derangement.

My favorite medicines are the vegetable alteratives, iris, stillingia, alnus, etc., with mild aperients at night.

CHRONIC INFLAMMATION.

Chronic inflammation is of frequent occurrence, is met with on almost every variety of structure, in the lung, in the brain, liver, spleen and kidneys.

All the serous and mucous membranes of the body are subject to it, and in many cases this proves a formidable condition, and extremely difficult to overcome, as chronic dysentery, catarrh, etc.

The substance of muscles and the different fibrous membranes appear to be the seat of chronic inflammation in some forms of rheumatism.

The skin is least liable to chronic inflammation unless we class lepra, herpes and other chronic cutaneous diseases as inflammation. Gleet, inflammation of the prostate gland, scrofula, enlargement of the absorbent glands, chronic ophthalmia, and ozæna are among the diseases in surgical practice, where chronic

inflammation is a characteristic condition. Now, as to the pathology of chronic inflammation, it is a significant fact that it may occur as a primary or secondary affection; secondary, when it succeeds acute inflammation, and it is more frequently met with in this form; gleet and dysentery belong to this form.

Sometimes chronic dysentery is not preceded by any marks of active inflammation. It begins almost imperceptibly; its advances are slow and exceedingly insidious, being unaccompanied by any symptoms that could betray, even to the experienced practitioner, the existence of such a condition.

This is fully exemplified in some forms of chronic peritoneal inflammation. The same is true of the chronic inflammation of the membrane of the brain, and even the heart itself.

In these instances all local symptoms of inflammatory action are wanting, as well as all constitutional symptoms. These are cases that form the exception, for it is much more usual for chronic inflammation, both primary and secondary, to exhibit local and constitutional symptoms, less in degree, but the same in kind, as those which accompany local inflammation.

The local symptoms produced by chronic inflammation vary, of course, with the parts affected. In chronic laryngitis, for instance, there are local symptoms, but no constitutional symptoms.

When the general system is implicated the symptoms are usually those which we have in fever generally. The pulse is quickened, there is a white tongue, thirst, and some degree of restlessness. We often meet with cases of chronic inflammation where the tongue is clean, there is no thirst, but the pulse feeble and languid, the extremities cold, and the slightest exertion occasions fatigue, general uneasiness and pain across the loins. This is a condition not indicating fever, but atony and debility.

The term *asthenia* has been applied by pathologists to express this state of the general system.

Many protracted cases of bronchial inflammation, especially those which occur in old people, exhibit in the greatest degree of perfection the character of *asthenic inflammation*.

Now, as to the cause of primary chronic inflammation, a few writers have attempted to explain it. I venture to suggest that irritation is the exciting cause, while the source of irritation varies. Chronic inflammation of the brain may result from the irritation of a spiculæ of bone, chronic inflammation of the lungs, from the irritation of cold, or the inhalation of obnoxious vapors, gases, poisons, etc.

A scrofulous habit, or diathesis, forms chronic inflammation, but is not by any means a cause. The tendency exists, and when any exciting or irritating influence is brought to bear chronic inflammation is the more readily set up.

A relaxed condition of the system, the application of depressing influence, or agencies, readily put in play a diseased or imperfect action of the whole system; then the weakest point suffers most.

The nature of that condition where chronic inflammation exists is a question upon which the scientific world has been divided—in fact, has thrown scarcely

any light upon the subject. Inflammation, from our stand-point, is an effort of nature to repair some injury or overcome some defective action.

Nature, greedy of her means, is prodigal of results ; a small number of causes preside over a multitude of effects ; the greater part of these about which we are doubtful are referable to the same principle with others which appear to us evident.

Now, in chronic inflammation we have the condition where nature makes the attempt, but the vital or natural powers are only partially able to respond. Chronic inflammation then may very properly be defined as an increased action of vessels (*sanguiferous and lymphatic capillaries*) not so far subdued as to tend to resolution, or so violent as to form abscess. We may go farther and say that in some classes of chronic inflammation, as before intimated, we have a condition of inertia or relaxation instead of increased action.

The opinion I wish to offer as to the cause or manner in which chronic inflammation is brought about is, that from some depressing influence—cold, for instance—we may have a partial obstruction of the circulation in the lymphatic capillaries. This obstruction nature endeavors to throw off by increased action. This being but partially successful after the first stimulus, we have a condition of relaxation and debility or diminished circulation in the parts involved.

This is the more readily demonstrated in the fact that where we have a chronic inflammation of the pericardium, so long as the patient is quiet and circulation not increased or very active, he may be entirely exempt from pain, while over-exercise, or anything that increases the circulation in the parts, gives more or less uneasiness.

There is evidently shown a considerable effort to throw off the condition of inflammation, but the vital powers not being strong enough this effort finally settles into a debility, not only a lack of power to throw off the obstruction, but lack of power to make the effort.

These thoughts are thrown out that you may take them, crude though they be, and investigate for yourself.

The effects of chronic inflammation, or, I may say, the local appearance of chronic inflammation, vary with the texture of the part affected.

A simple thickening of structure is a common appearance in serous, mucous and cellular membranes.

Sometimes the thickening assumes the form which is designated by some writers as *tubercular accretion*. At other times the part inflamed is converted into cartilage and bone. Instances of osseous formation taking place as a result of chronic inflammation occur in chronic laryngitis, pleurisy and pericarditis.

Another effect of chronic inflammation in serous membranes is the extensive union of opposite surfaces.

Scirrhus, I am fully convinced, is the effect of chronic inflammation of a glandular organ. The origin of tumors can, in my judgment, be readily traced to a chronic inflammation of vessels. As an illustration—a tumor forms on a part that previously received a blow, but little notice was taken at the time, merely a soreness or bruised feeling, which soon passed off, but by and by, a

small growth appears as a result of congestion and chronic inflammation of local vessels.

Now, we may place tubercle in the same category, but a necessary preliminary is an impoverished or scrofulous condition of the blood. Chronic inflammation appears in those parts which have the least power of resistance.

Now, as a remote effect of chronic inflammation, we may have suppuration as shown in the collection of purulent matter in cyst and other structures without any evidence of previous inflammation. Ovarian cysts are evidently the result of chronic inflammation. Uterine cysts and tumors are in most cases directly traceable to chronic inflammation.

Treatment.—Treatment of chronic inflammation is very little understood—in fact, its existence is almost ignored by the great body of practitioners, and some of the best writers who have tackled the subject at all candidly confess that while acute inflammation is under most circumstances readily controlled, chronic inflammation is almost or quite beyond the reach of medicine. Under the popular system of practice this is true; under the American system, however, it is quite different. Recognizing chronic inflammation as an effort, I assert the way is plain and easy enough—that is simply assist the natural effort. If we do this and there is vitality enough left in the parts and in the system generally, we shall meet with abundant success.

The treatment must depend upon the state of the constitution, but in nearly every case of chronic inflammation the plan of treatment is plain and simple and will consist of alteratives—alteratives in the beginning to get up a reaction. For this purpose we would give a small dose of podophyllin and iris versicolor in chronic inflammation of the liver; the hypophosphites in scrofulous inflammation of absorbent glands; stillingia comp. in rheumatism, etc.

After we obtain some impression with alteratives we alternate with mild diffusible stimulants to aid the life force; xanthoxylum in rheumatism, asclepias in pleurisy, capsicum in laryngitis, etc.

Taking this view of chronic inflammation and treating it upon the above line will enable you to fully understand and successfully treat many obscure diseases which can be traced to no other source than chronic inflammation.

ADHESIVE INFLAMMATION.

Adhesive inflammation is the process by which divided parts become united. Unless adhesive inflammation takes place not the slightest wound would unite; it is therefore one of the first points of surgery to endeavor to obtain a healthy adhesive inflammation.

Serous membranes, as we have already remarked, are particularly disposed to *adhesive* inflammation; whereas mucous surfaces on the other hand are generally attended with the *suppurative* process; that is, in both cases, if the inflammatory action does not subside without effecting a change in the parts.

This ordination is a most beautiful and wise provision of nature, for if the *serous* membranes of cavities, such as the pleura and peritoneum, instead of

the adhesive, were to receive and support the suppurative inflammation, effusion and death would be the inevitable consequences. Again, were the *mucous* membranes of the urethra, intestines and so on, affected with adhesive inflammation instead of suppurative, the outlets of our bodies would be closed and death certainly follow. Sometimes, however, where inflammation of a mucous membrane is exceedingly violent, it passes into the adhesive state, glues the parts together, and unless relieved by an operation would end in the destruction of life.

Adhesive inflammation once set up, either as the result of an accident or otherwise, the fibrin of the blood is effused into the cellular membrane or on the surface of the wound, by which means a connecting medium is formed and the parts become permanently united.

Adhesive matter, when effused on a thin membrane, coagulates into a network, assuming the character of cellular membrane.

The length of time which is necessary before the adhesive inflammation commences is different according to the structure of the part and the nature of the constitution. In the cavity of the abdomen, the intestines will be glued together in nineteen hours, or thereabouts. On the surfaces of wounds the process of adhesion takes place still more rapidly. When adhesive matter has been formed blood vessels soon enter it, and within a short time it becomes organized; the vasa vasorum are elongated by the force of the circulation; they enter the newly-formed substance and send throughout it minute ramifications.

In cutting into adhesive matter within twenty-four hours after it has been deposited, small bloody spots may be seen, which mark the future situation of the vessels which nourish it; but it is not till ten days after it has been formed that adhesive matter becomes completely organized, for you will find that a fine injection would not enter adhesive matter sooner than the tenth or eleventh day after its formation. When vessels elongate they have not the character of arteries; in general they take a serpentine course.

The adhesive process is useful in the formation of cysts, in healing wounds, sealing blood vessels, enclosing pus, and by its dividing cavities into distinct parts, thus fixing a boundary to the suppurative process.

The effusion of adhesive matter by unloading the vessels of the part has the effect of reducing inflammation, so that the process generally terminates as soon as this effect is produced.

SUPPURATION.

Suppuration is one of the terminations of inflammation; it consists in the formation of purulent matter from the secreting orifices of the blood-vessels, which matter is named *pus*.

Pus is formed in cavities, produced in the body by a process of absorption, as in abscesses; it is found also as a secreting fluid on the surfaces of membranes or upon granulating surfaces.

The formation of matter is often attended with severe constitutional irrita-

tion ; there are rigors succeeded by heat, and if the inflammation be extensive or seated in any vital organ, the constitutional disturbance will be very severe, and the shivering which indicates the formation will also be severe and followed by a powerful reaction. When pus is easily produced, as upon mucous membranes, there is no rigor whatever.

When there is an attempt to produce matter, there is an unusual sensation of uneasiness in the part, together with a flush on the skin. As this continues, the tumor becomes soft in the middle, but remains hard at the sides ; the centre rises, and upon pressure fluctuation will be evident.

In the adhesive inflammation the pain is an acute, thrilling one ; but here it is more dull, and is likewise pulsatory or throbbing.

The next thing to be observed after the pointing of the tumor is an effusion of serum beneath the cuticle, which, separating it from the cutis, it becomes gradually distended, and then bursts, leaving the cutis exposed.

Ulceration sometimes takes place on the surface of the skin, whilst the same process is going on internally, so as to facilitate the discharge of the matter ; generally speaking, however, the ulcerative process is continued entirely from within.

Pus is generally formed in from seven to fourteen days ; but the time required for this process will very much depend on the constitution of the patient and the structure of the part in which the inflammation is seated.

Some parts more readily run into the adhesive, others into the suppurative inflammation ; the pleura pericardium, peritoneum, etc., are subject to the former, while the urethra, vagina, lachryneal duct, trachea, bronchia, etc., are liable to the latter ; serous surfaces, therefore, are affected by the adhesive inflammation and mucous surfaces by the suppurative.

The vessels of serous membranes are too small to permit the transmission of particles which pus contains ; but when the inflammation becomes excessive or long continued, then the vessels dilate and purulent matter is formed even on serous surfaces. Pus is not fluid produced by the dissolution of the solids ; it is secreted by the blood vessels, but not till they have been acted upon by inflammation.

The effects produced by the application of a blister exemplify this.

When the cuticle is raised, first serum and fibrin are thrown out ; remove the cuticle and apply upon the raw skin a piece of glass ; at first no matter is to be seen, but in a few minutes you will observe it collect and adhere to the under-side of the glass. Bile, urine, the tears, and in fact all the fluids, are secreted from the blood, but in each instance the action of the vessels is different.

Pus is composed of particles nearly similar to the blood, only differing in color, swimming in a fluid resembling serum, and coagulating, as serum does, when exposed to the influence of heat.

Pus, when healthy, is a bland fluid, and will not irritate the parts that produce it, but when it is unhealthy, having mixed with it too large a portion of serum, or when bloody, then it will irritate and occasion excoriation. Healthy pus appears to be composed of the constituent parts of the blood slightly changed in their character by inflammation.

When pus of a poisonous kind (the result of specific inflammation) is applied to the surface of the body, it irritates, occasions inflammation and suppuration, and the newly formed matter is exactly of the same virulence and poisonous nature as that which produced it.

The discharge of gonorrhœa, chancre, vaccine and variolus matters are well known examples.

Suppuration answers two very beneficial ends: the first by forming a convenient covering to granulating surfaces, and the second by effecting the escape of extraneous bodies.

Some wounds are very troublesome—do what we will, we cannot get them to heal. In these cases, it is advisable to discontinue your dressings and let their surfaces remain exposed to the air; incrustations or scabs will form; under these pus will be secreted, which, by keeping the granulations constantly moist, will often cause ulcers of this kind to heal when all artificial attempts have been completely unsuccessful.

Long, accustomed discharges require great caution in healing them; for, if done too suddenly, hectic or apoplectic symptoms are very apt to supervene. Quantities of matter constantly discharging for a considerable period inevitably act on the constitution as sources of depletion, and which, if suddenly discontinued, will naturally produce the symptoms just mentioned.

Ancient surgeons, therefore, instituted issues as a counter-action, but purgative diaphoretics and diuretics will answer much better, and speedily carry from the system, by a natural channel, any increase of its fluids. Suppuration is best promoted by the application of heat and moisture combined.

ULCERATION OR ABSORPTION.

Ulceration is the absorption of any part of the body and the result of previous inflammation.

Inflammation has not only an influence on the arteries, it has also an effect on the absorbent vessels; there is a natural balance between the action of the arteries and the absorbent vessels. In a state of health, and at the adult period of life, the portion of matter deposited by the arteries, and the portion taken into the system by the absorbent vessels, are, as near as possible, balanced. But if any considerable inordinate absorption of some part of the body takes place, that absorption is called *ulceration*.

Ulceration, therefore, arises from an increased action of the absorbents, and this generally proceeding from pressure united with inflammation. These vessels are thrown into a state of inordinate action whenever any considerable quantity of blood is thrown upon them, whereby the natural balance between the arteries and absorbents is destroyed.

Ulceration often occurs without being accompanied by any purulent secretion. Aneurism is a very good proof that pressure is the cause of ulceration, and that ulceration is not necessarily accompanied with the formation of matter.

Formation of matter more frequently happens on exposed surfaces of the

body, where it is necessary for the protection of sores by covering the granulations. The constitutional symptoms of ulceration are usually moderate. In general a degree of fever attends it, but it is rather of the hectic or chronic kind than sudden or violent in its attack. The pulse is under one hundred, and at the same time small, and the pain is of a gnawing, dull nature, as if insects were about the part.

The local symptoms present the appearance of the part being worm-eaten; the surface is rough and very irregular. Ulceration is sometimes extremely rapid and extensively destructive; as much will be destroyed in a few hours as will require weeks and months to repair. The difficulty of cure must necessarily be proportioned to the extent of surface destroyed; something will depend also on the form of the ulceration and the kind of surface exposed. The ulcerative process has always a tendency to the nearest external surface of the body. In consequence of this tendency, matter formed at a depth in the body finds its way through the more important parts.

This is a law in part depending on the less vitality and greater irritability of those parts which are nearest the surface of the body. The external parts, with respect to circulation, have less vitality and are more readily absorbed. The external parts are not lacking in vitality with regard to the quantity of blood, for they possess a considerable share of vascularity; but they are deficient in the living powers. They are more irritable and more subject to vicissitudes of action from corresponding changes of temperature than other parts of the body; have less strength of circulation, and consequently give way to ulceration more readily than those parts which are deeper seated and possess a greater strength of circulation. Parts at a considerable distance from the source of circulation are generally more disposed to ulcerate than others situated near to the heart. This accounts, in a measure, for the greater number of ulcers on the lower extremities than on the arms. Newly formed parts of the body, such as cicatrices, callus and all adventitious new matter, like tumors, are more liable to be absorbed than those which have long existed. The irritability of a part is proportional to its weakness, and the parts which are weak and irritable fall most readily into the ulcerative process.

In those parts which are endued with little vital power ulceration takes place readily, while in those to which the quantity of blood sent is very small, ulceration takes place with difficulty. This is the case with tendons. Tendonous parts possess very little blood; very few arteries or absorbent vessels are distributed to them. Hence, the process of absorption goes on with great difficulty and tendons will slough to a great extent rather than become absorbed. The circumstance of tardy absorption of tendonous structure must not unfrequently influence our practice.

When there is an abscess under a fascia, an incision should be made as soon as possible through the covering to liberate the confined matter; so with an abscess of the finger; when the constitution suffers because the part will not give way to the process of ulceration, and the nervous system becomes irritated by the pressure of confined matter, an early incision should be made to liberate

the matter and give relief to the constitution. The same practice should be pursued in abscess of the palm of the hand.

The ulcerative process is useful to the animal economy in removing extraneous bodies from the system, in the exfoliation of portions of the bone, and in separating parts which would otherwise remain in the body for the remainder of life. Thus a ball lodged in the body, and a ligature round an artery, are disengaged by the ulcerative process.

ABSCESSSES.

An abscess is a collection of matter in a cyst, produced by inflammation giving the surrounding parts a tendency to the ulcerative process, so as to lead to their absorption.

First, there is an inflammation of the adhesive kind in the cellular tissue, by which the different cells of the cellular membrane become filled with adhesive matter. A slight ulcerative process takes place, the inflammation still proceeding, and a little cavity is formed by the process, a space being left for the effusion of pus, the result of the second stage of inflammation. A drop of matter is secreted in the cavity, and as soon as it is poured out the pressure on the side occasions an increase of the ulcerative process, which adds to the cavity previously formed. More matter is then produced and the surrounding solids have a tendency to the same process; it is accumulated so as to lead to absorption of the neighboring parts. In the formation of abscess matter does not produce absorption of all the parts around equally. It excavates chiefly on the side towards the skin, and very little in the opposite direction, therefore has no power of eroding. Abscesses are dangerous according to their size, number and situation. In large abscesses, neither the danger nor constitutional effects arise from the quantity of matter produced, but from the difficulty which nature has in repairing the devastation made by the excavation of the solids from the pressure of the matter. An abscess may discharge a great quantity of matter, and the constitution may not have scarcely been affected by it, but very soon after it is opened the constitution begins to suffer. Very large abscesses sometimes terminate favorably, but in many cases they destroy life. A great number of small abscesses on the surface of the body, as in small-pox, terminate fatally.

Here nature performs the suppurative process; the pustules die away and the cuticle is separated from the surface of the body; but nature has not the power, in many cases, of repairing the destruction of the cutis; the exposure of the nerves of the skin occasions great constitutional irritation, and the patient dies as if destroyed by a burn or scald.

Abscesses are also dangerous from their being situated in vitally important parts, such as the brain, heart or lungs, and even though not situated in vital parts, they sometimes become dangerous by their pressing on them.

Abscesses in the perinæum, or between the prostate gland and the rectum, will, by their pressure on the urethra, occasion irritation of that part and sometimes complete retention. When bones form the boundary of abscesses they

become very long and tedious in their progress, and, in some cases, attended with a considerable share of danger.

Thus it is in psoas abscess. In this disease the matter begins to collect on the forepart of the vertebræ and proceeds through the hollow of the psoas muscle till it reaches the groin, where it makes its appearance just below Poupart's ligament; extensive discharge supervenes and not unfrequently the patient sinks. When abscesses occur between bones and their coverings, exfoliation takes place to an alarming extent.

Abscesses are either *acute* or *chronic*—the former having a common course of three weeks, the latter much slower in their progress.

With the acute abscess the adhesive inflammation first begins; this is succeeded by the suppurative, and lastly the ulcerative process comes on, and it is generally three weeks from its commencement before matter is discharged.

Treatment.—The constitutional treatment of acute abscesses should be directed towards the secretion of the bowels; gentle aperients and the nervous system and pain relieved by lactuca, cypripedium or papaver. A good combination is:

R—Syr. Rhei et Potass	℥ iii.
Fld. Ext. Leptandra	aa.
“ “ Lactuca	℥ ss.

Dose.—One teaspoonful once in three hours. By this medicine you lessen irritation and promote the suppurative and ulcerative processes.

The local treatment consists in the application of fomentations and poultices, for by promoting heat and moisture a greater quantity of blood is sent to the part and a relaxation of the vessel takes place; this expedites the suppurative process, and that being done, the ulcerative process takes place with more ease.

The kind of poultice to be applied is of little importance, but a cracker poultice, well sprinkled with lobelia herb pulv., or iris versicolor and lobelia combined, is perhaps the best.

In the suppurative stage prevent evaporation by covering the part with oiled silk; it preserves the heat and moisture, is clean, agreeable to the patient and most conducive to his comfort. If an acute abscess seems disposed to go through its different stages without any interruption, the best practice is to leave it undisturbed. Acute abscesses beginning under aponeurotic fasciæ ought to be opened as early as possible—the earlier the better.

The moment one drop of matter may be felt to fluctuate, it is advisable to make a free opening, both as regards the constitution and the part. Whenever matter can be felt close to the bone it will be right to open it, excepting in cases where it may occur from severe courses of mercury, between the cranium and pericranium.

In those cases where a fluid exists between the pericranium and bone, *unattended* with any blush, do not open it. It can be removed by an active alterative course, keeping the bowels well open; but when matter is formed and *there is a blush*, it will not be absorbed; an opening must be made and exfoliation will often take place. As in acute abscess, we are called upon to diminish the state of excitement in the constitution; so, on the other hand, in *chronic* ab-

scusses we must do all we can to give the constitution additional powers by allowing the patient a generous diet and administering stimulants and tonics. Stimulating poultices should be applied to the part, and when the abscesses are of an indolent nature a stimulating plaster will prove serviceable. The best poultices for the purpose are made with yeast and oat-meal, or vinegar and flour, and these wetted with a solution of common salt sprinkled with capsicum. This will excite the parts to action and generally produce a slight local perspiration.

When it is necessary to open an abscess you should do it early, particularly in exposed parts of the body, as the early discharge of matter is the prevention of scars. Abscesses, situated in the neck or any exposed part, should be opened before the skin is much affected and before a blush has appeared; thus scars in general will be prevented, and the incision should be made transversely and not in the axis of the neck. When these tumors have acquired the hue of a grape, the veins are dilated and they consequently should never be opened. In common abscesses a small opening is sufficient, but when the matter is seated beneath a fascia it should be more free.

After the opening is made the matter should be pressed out and the wound poulticed or the adhesive process attempted by pressing the sides of the cavity together and retaining them in that position (leaving a sufficient opening for the escape of matter) by strapping or, if necessary, by the application of band ges. If the edge of the wound should not unite in any part, a little injection of myrica lotion may be used.

Hectic fever sometimes attending abscesses does not arise, as was formerly supposed, from absorption of the matter into the system, for, till after the abscess has broken, the constitution is not attacked with it. The formation of matter is usually attended with slight fever, but not of the hectic kind; the tongue will be clean, the pulse very little affected and the patient very slightly deranged, but after an opening is made into the part constitutional irritation comes on and life is then endangered.

The degree of hectic fever is not at all proportionate to the size of the surface on which the matter is formed; for in extensive sores of the leg, there will be little or no inconvenience, whilst a sore on the lungs of the size of a half crown produces hectic fever of the most violent kind.

GRANULATION.

A granulation is a newly formed part, generally red in color, and having the power of secreting pus, and is produced by a similar process to that of adhesion.

After opening an abscess, adhesive inflammation is produced in the internal surface of the cavity.

A layer of adhesive matter is in this way thrown out, and if the sides of the abscess are brought together, by passing a roller round it, we may often prevent the further formation of matter, but if the union by adhesion does not take place, then granulations are formed.

The manner in which granulations are formed is as follows : When an abscess is opened, or when a wound has been produced, if the edges are not brought together inflammation is excited, and this inflammation occasions an effusion of the fibrin of the blood upon the surface of the wound. This fibrin is poured out in a layer upon the surface, and soon becomes vascular for blood vessels, which are elongations of the vasa vasorum of the divided vessels, are forced by the action of the heart into the fibrin as it becomes deposited, layer after layer. The difference between the mode of union by first intention and by granulation is that, in the latter vessels shoot to the surface of the layer, which has been thrown out, terminating by open mouths on the surface of the newly formed substance, and secreting pus, at the same time that a layer of fibrin is effused. The fibrin which is thrown out, besides the purulent secretions of the vessels, forms a second layer, into which the vessels shoot as before ; the vessels supporting the first layer are the means of supporting the second layer, where the vessels terminate as before, by open mouths on the substance effused. In this manner, layer after layer is formed until the cavity becomes filled.

Granulations are usually exceedingly sensitive and very vascular, having nerves, arteries, veins and absorbent vessels. The vessels are principally arteries, which throw a quantity of blood to the surface of the wound and then secrete pus.

There is a vein accompanying each artery, and the fluid conveyed by the vessels is partly converted into pus on the surface of the ulcer and partly returned back to the heart.

Granulations which spring from parts endued with great sensibility, such as muscles, are extremely sensitive.

Many granulations, such, for instance, as arise from bones, have no sensibility whatever, unless indeed they spring from cancellated structure, or the bone is in an inflamed condition.

Granulation appears to become vascular in the following manner : An artery enters at the base of granulation, and is there divided into radiated branches ; from these vessels pus is secreted and an incrustation is formed, producing a layer of adhesive matter on the surface of the granulation.

Granulations are not good absorbent surfaces in ulcers recently formed, but if the ulcers have existed for any length of time the absorbent vessels readily take into the system any substance which may be applied to them. This should warn you against the use of any poisonous application.

Granulations are very readily united to each other by bringing the edges of the two granulating surfaces together so as to produce the adhesive process.

A knowledge of this circumstance will save much time, for instead of waiting for the tedious process of the union of both surfaces by granulations filling the cavity, you have only to bring one portion of the granulations in contact with the other, bind them well together with adhesive plaster and they will be sure to inosculate.

CICATRIZATION.

Cicatrization is the formation of the new skin over a sore, and is effected by the vessels at the edge of the skin forming granulations, and these granulations uniting with the granulations of the surface of the sore. The granulations produced from the edge proceed towards the centre, and those on the edge inosculate with those on the surface of the sore, and are united by the adhesive process. The vessels become elongated from the edge of the sore, and proceed from the circumference to the centre. Day after day an addition is thus made to the cicatrix, until at last the vessels reach the centre from every part of the circumference, when the process of cicatrization is completed. When cicatrix is formed in the first instance, it is extremely vascular, but when it has existed for any length of time the blood vessels become contracted and is whiter than the original skin, loses its vascularity and is endued with less vitality than the surrounding parts.

The form and situation of a sore very much regulate the readiness with which it is covered in by cicatrization; so that you may always expect that a round sore will be longer in healing than a longitudinal one. The reason is that the vessels have to elongate much less from the edge to the centre in a longitudinal than in a circular sore.

In the formation of cicatrices, the original parts may all be produced, except muscle and cartilage.

A muscle unites by tendon, and the cartilages of the ribs unite by bone. This, however, will depend in some measure on the age of the person, for in very young subjects cartilaginous union will be produced; but in subjects more advanced in years, the cartilages of the ribs invariably unite by bone.

The skin which is produced in a cicatrix is true skin; the cuticle is very quickly reproduced, and the rete mucosum, after a short period. The cellular membrane is also reproduced, though it has at first the appearance of a solid fibrous mass, which requires some time before it is drawn into the reticular texture, similar to the original membrane. Tendons, bones and nerves are also reproduced, but there is some little doubt whether nerves assist at all in the restoration of sensation by anastomosis.

ULCERS.

An ulcer may be defined to be a granulating surface, secreting matter, arising from an inordinate action of the absorbents, produced by previous inflammation.

By some writers an ulcer is defined to be a solution of continuity in any of the soft parts of the body, attended with a secretion of pus, or some kind of discharge.

Ulcers are usually distinguished from each other by the symptoms which they exhibit, the causes by which they are induced, and by the parts of the

body in which they occur. In treating of ulcers I shall first describe the appearance of ulcers in what may be termed their healthy state. I shall then detail the several circumstances which render their cure difficult, and proceed to point out the general varieties, and the treatment most likely to prove efficacious.

HEALTHY ULCERS.

When an ulcer is in a healthy state the granulations are red and small upon the surface, rising a little above the edge, the discharge of matter of the appearance of cream, and the edge of the sore whitish and nicely adapted to the surface.

The florid color of the healthy granulations is produced by the blood vessels having a considerable quantity of arterial blood and a free circulation. Their being raised above the surface of the sore is necessary in order that a sore should heal kindly. By the edges of the sore being nicely adapted to the circumference, the granulations springing from the surrounding skin, unite with those of the surface. When you open an abscess, or when a wound is produced which can be healed by the adhesive process, you must encourage the growth of granulations by the application of the gentle stimulus of poultices, and when the granulations have risen to the surface of the skin press down the granulations of the edge on those of the surface, either by the application of adhesive plaster or unctuous substances. The more unctuous the substances are the better; for the vessels will have a greater facility in shooting towards the centre, and the granulations embedded in this unctuous matter will more readily extend along the surface of the sore. Such are the principles of treatment applicable to ulcers in the healthy state. We shall now proceed to consider the impediments to the healing process, which frequently occur, and render a different mode of treatment necessary. When there is too prominent a state of the granulations (vulgarly called *proud flesh*) rising considerably above the edge of the skin, they are necessarily prevented from uniting with those of the surface. In order to prevent the continuance of this state of the sore, the common treatment is to apply dry lint to the centre of the sore and some unctuous substance to the edges. The lint by its pressure prevents the growth of granulations in the centre, while the unctuous substance allows the granulations on the edge to proceed and inosculate with those on the surface of the sore. The lint should not be applied to the edge of the sore, for if it is the granulations will be prevented from proceeding towards the centre. In those ulcers in which luxuriant granulations shoot up near the edge of the sore, our practice is just reversed; for, instead of applying lint to the centre, we must use a kind of caustic to destroy the prominent granulations at the edges. Pulverized sanguinaria, podophyllin, or burnt alum are the best. Adhesive plaster is also used to keep down granulations.

INDOLENT ULCERS.

There is often great difficulty in the cure of ulcers when they are of a languid condition and the action too slight. To overcome this unhealthy state of the sore the best application is :

R—Fld, Ext. Myrica Cer.....	} aa.
" " Hamamelis Vir.....	
Comp. Tinet. Myrrh.	
Aqua.....	
	} 3 ss.
	O i.

Which occasions a determination of blood to the part and produces a florid redness in the granulations, instead of the semi-transparent appearance which they assume in the languid state of the sore. In addition to the means already mentioned for the cure of indolent ulcers, it will be useful to employ some stimulating plaster. The black salve is the very best application for indolent ulcers and will be all the local dressing required except the myrica lotion.

The constitutional powers of a person afflicted with indolent ulcers are weak and the circulation generally tardy.

You should therefore recommend, in addition to the local remedies, a generous diet, free exercise, and, in fact, everything calculated to improve the general health; a thorough course of alterative treatment.

INFLAMED ULCERS.

Here you have a serous discharge from the sore; a bloody ichor composed of serum and the red particles of the blood; a disposition in many cases to slough; the surface covered with a brown incrustation, and the skin and surrounding parts highly inflamed. The treatment which is applicable to inflammation in general will be of service in these cases where inflammation has been kept up a long time to a high degree. Fomentations and poultices must be employed; rest and the recumbent position be enjoined, and the general secretions of the body attended to, for without attention to the constitutional treatment all your local applications will be of very little use.

Fomentations will tend to produce a secretion from the part, and poultices by their soothing quality to promote the growth of granulations, and both will evacuate the matter from the wound. After these applications have been made, the vessels begin to form and the sore assumes a better appearance; healthy secretions are thrown out, granulations shoot up, fibrous matter is deposited, and in a little time you will have the skin covering the wound..

GANGRENOUS ULCERS.

In ulcers of this kind the surface is perfectly free from any discharge, the surrounding edges of a livid appearance with small visicles or blisters on them, and the patient suffers much from irritative fever.

In the treatment of these cases you must adopt constitutional as well as local remedies. The recumbent posture must be enjoined, as it is essentially necessary to promote the separation of the dead parts, a generous diet allowed, stimulating medicines administered, and moderate stimulating applications to promote a slightly increased action on the part; sometimes, however, when the action is excessive, you must, on the contrary, soothe the part and lessen the stimulating nature of your constitutional treatment.

The most approved constitutional treatment in these ulcers is rest and generous diet. Milk punch should also be allowed, and alcoholic liquors may be given freely to those who have been in the habit of using them. The best

medicines to be administered are fld. ext. xanthoxylum and cypridium, forty drops three times a day. When there is debility of the part a slight stimulus should be employed, but when there is excessive action it is to be avoided. The best application for producing a slight stimulus and checking gangrene of the part is nitric acid; there is none equal to this; fifty drops of it to a quart of distilled water is the average quantity, but this, however, may be increased or diminished, just as it may give pain to the part. There is usually much difficulty in the cure of gangrenous ulcers, so that you must necessarily have recourse to a great variety of applications, for after you have tried one, which at the beginning did good, you will, from the wound getting worse under its use, be obliged to change it for another.

The other local remedies, in addition to nitric acid, are the application of oil silk to the wound, so as to prevent the smell arising from the parts contaminating the room. Poultice with wild indigo, yeast poultice, or carrot poultice.

The best medicines to be administered are fld. ext. xanthoxylum and cypridium, forty drops three times a day. Where there is debility of the part, a slight stimulus should be employed, but when there is excessive action it is to be avoided.

IRRITABLE ULCERS

May be known by the inequality of the granulations, the discharge of the bloody pus and the great tenderness in the part, so that the patient, when touched in that part, shrinks with excessive sensibility. There is always considerable difficulty in the treatment of these sores. The alterative and soothing plan must be adopted. The best local remedy you can apply is a warm hop poultice; alternate with flax-seed and pul. hydrastia, made into a poultice and changed as often as dry. Alteratives should be given in sufficient dose to make impression on the system; say, a tablespoonful of syr. iris versicolor comp. three times a day.

SINOUS ULCERATION.

Whenever a sore extends to any considerable depth, so that the discharge has to travel through a channel before it arrives at the surface, such an ulceration is called sinous. The cure of sinous is rendered difficult—first, from matter forming at the bottom, forcing its way through the passage and thereby disturbing the healing process by breaking down whatever adhesions or granulations form on its sides; and, secondly, the same interruptions occur from the actions of the muscles, when these ulcerations happen in muscular parts, thereby sometimes keeping up an irritation. Your object of treatment in the cure of sinous ulceration must be to promote healthy granulation; inject the sinous twice daily with a solution of chloride of zinc, four grains to an ounce of water.

This will readily produce inflammation; adhesive matter will be thrown out, and by taking care to keep the sides of the sinous in contact with the parts will permanently coalesce.

ULCERS UNDER NAILS

Are sometimes exceedingly difficult to heal from an irritation caused by a portion of the nail producing fungus, but as soon as the projecting part of the nail

is removed the fungus will cease to grow and the ulcer immediately heal. A nail, for example, from pressure or some other cause, shoots into the skin beside it; a fungus springs up; the surgeon applies caustic and destroys it; in a short time it rises up again; the caustic is repeated, and the fungus disappears; it speedily, however, returns and will continue to do so, notwithstanding all his efforts to the contrary, unless he removes the irritating cause.

There are two modes of treating these ulcers—either the application of strong astringents, as tinct. chloride of iron, or introducing a piece of lint under the nail; the former brings away the cuticle and sometimes the nail along with it; the latter, however, is more lenient and a better remedy. Pare down the nail as thin as you can without producing bleeding, then raise it a little and introduce a small piece of lint. In this way the irritating cause may generally be removed, but it sometimes happens that the sore is so exceedingly irritable that even lint cannot be lodged on its surface without producing increase of inflammation and pain; in such cases I would recommend slitting up the nail with a pair of scissors on that side where the disease exists, and then with a pair of forceps turn back and completely remove the divided portion. The part should be poulticed after the operation.

The nail sometimes turns black from a disease of the gland from whence the nail proceeds; such affections are not uncommon and are often thought to be syphilitic; this opinion, however, is erroneous. You must wash the sore with myrica lotion and administer alteratives; sometimes in these cases we are obliged to dissect out the gland that produces the nail.

MENSTRUAL ULCERS.

These are sores peculiar to the female sex, and are depending on amenorrhœa. Their peculiar character is that once in three weeks or a month they are covered with blood, so that they will one day be covered with pus, and probably on the next be covered with blood. This state of affairs is the result of a defective menstrual discharge, so that the superabundant quantity of blood, which ought to be voided in the natural way, is thrown back upon the system and obtains an escape through the ulcer. In these cases, in addition to local applications, you must endeavor to improve the state of the constitution by restoring the defective secretions. Menstrual ulcers should be well moistened with the myrica lotion, and give the patient an active tonic course combined with emmenagogues.

CHRONIC CARBUNCLES.

An ulcer of the cellular membrane, or what is called chronic carbuncle, occurs when the health is impaired; a small swelling forms under the skin, at first red, then turns purple, and ultimately sloughs. A white substance is soon perceived at the bottom of the sore, and as soon as this comes away healthy granulations will rapidly form and the wound become healed. As these cases appear to arise from an impaired constitution the general health must be improved and the granulating process incited. The first indication will be answered by the administration of aperients and alteratives, and in cases of great

debility by giving hypophosphites. If any one medicine improves the nervous system when deranged more than another it is the hypophosphites. One tea-spoonful three times a day. The second indication, or local treatment, must be effected by poultices, or if they will not answer by slight stimulants, as the myrica lotion.

SUPERFICIAL ULCERATION.

It not unfrequently happens that the skin in various parts of the body gets into a state of superficial ulceration and without any evident cause. The cure of superficial ulceration is best effected by the local application of myrica lotion and oxyde of zinc ointment and the internal use of syrup iris versicolor, in conjunction with the cinchona comp., especially when the ulceration is connected with disease of the mesenteric glands.

ULCERS FROM VARICOSE VEINS.

These are ulcers most frequently situated in the lower extremities. They are the result of inflammation produced by an impeded venous circulation, and as soon as the inflammation is set up the sequel is disquamation of the cuticle, then the whole face of the surface covering the diseased veins is formed into a crust under which a quantity of serum is secreted. A varicose condition of the veins may arise from many causes, but the more immediate one appears to be either a thickening of the valves, so that they are incapable of approximating, or a rupture of the valves—in either case the effects will be the same, the veins being distended and serpentine and the valves widely separated from each other; the arteries, by their powerful attempts to return the blood to the part, soon excite inflammation and ulceration quickly supervenes.

In the treatment of these ulcers the recumbent posture must be strictly enforced. Lint moistened with the myrica lotion or the sulphate of hydrastia should be laid on the ulcer, oiled silk over these and then the limb should be well and regularly bandaged, beginning at the foot. Opening the veins about twice a week, if necessary, is a very safe and effective practice; then applying a bandage and keeping the parts wet by means of an evaporating lotion.

If the punctures at any time should not unite, but fret into ulcers, you must apply the black salve. In persons who have been subject to varicose veins for a length of time, the crust alluded to will come off and hemorrhage follow, but by placing the patient in a recumbent posture, applying a bandage and keeping the parts constantly cooled with the myrica wash or cold water, you will in all probability get rid of the disease altogether. It was formerly the practice, when the veins were in a varicose state, to tie and divide them, but it is a practice replete with danger; therefore let me exhort you never to sanction it. Another overwhelming objection to the operation is, that when it does not prove fatal its ultimate effects are perfectly nugatory.

ULCERS IN JOINTS.

These arise from inflammation caused by the deposition of the urate of soda, so that persons will come to you with many joints open from this cause and

the cartilages more or less absorbed. If it is necessary you must increase the openings through the skin and remove the urate of soda, that being the exciting cause.

USE OF ULCERS.

Ulcers are sometimes sort of safety valves and beneficial to the general health, for they are frequently formed for the purpose of allowing the discharge of extraneous bodies.

When such substances become lodged, therefore, in any part of the human frame, inflammation is excited, pus becomes secreted, which pressing towards the surface ulceration takes place and the extraneous substance is thus afforded an opportunity of escaping.

Ulcers frequently occasion exfoliation of bone to a very considerable extent. Here you can assist nature by applications which act chemically on the parts; therefore apply a lotion composed of muriatic acid, or nitric acid and water. This wash will dissolve the phosphate of lime, or earthy matter of the bone; and by removing this inanimate substance of the power of the absorbent will be increased, and a quicker separation of the diseased from the healthy parts will be the consequence.

EDGES.

The process of healing ulcers is occasionally very much impeded by a thickened state of the edges, to obviate which the edges must be adapted to their surfaces by adhesive strips. The edges of sores are sometimes very much *inverted*, for which the usual constitutional medicines are to be given, and sanguinaria applied to the edge and myrica lotion to the surface.

Some sores have their edges very much *everted*, and this affection is commonly symptomatic of a cancerous diathesis. The usual method of treatment is to poultice such ulcers, and to attend particularly to the general health, until the edges have resumed a natural and healthy state.

ERRATA.

In the prescriptions in the body of the book *Xanthoxylum* is sometimes spelled with a Z. This was overlooked in the correcting of proof.

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